United States Court of Appeals
for the
District of Columbia Circuit

TRANSCRIPT OF RECORD

BRIEF FOR APPELLANTS.

United States Court of Appeals
For the District of Columbia

No. 9115

616

OCTOBER TERM, 1945.

UNION METAL MANUFACTURING COMPANY, Assignee,
and
EDMUND W. RIEMENSCHNEIDER, and
HARRY O. RASTETTER, Assignors,
Appellants,

vs.

CASPER W. OOMS,
As Commissioner of Patents,
Appellee.

United States Court of Appeals
for the District of Columbia
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Appeal from the District Court of the United States
for the District of Columbia.

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FOR THE DISTRICT OF COLUMBIA.

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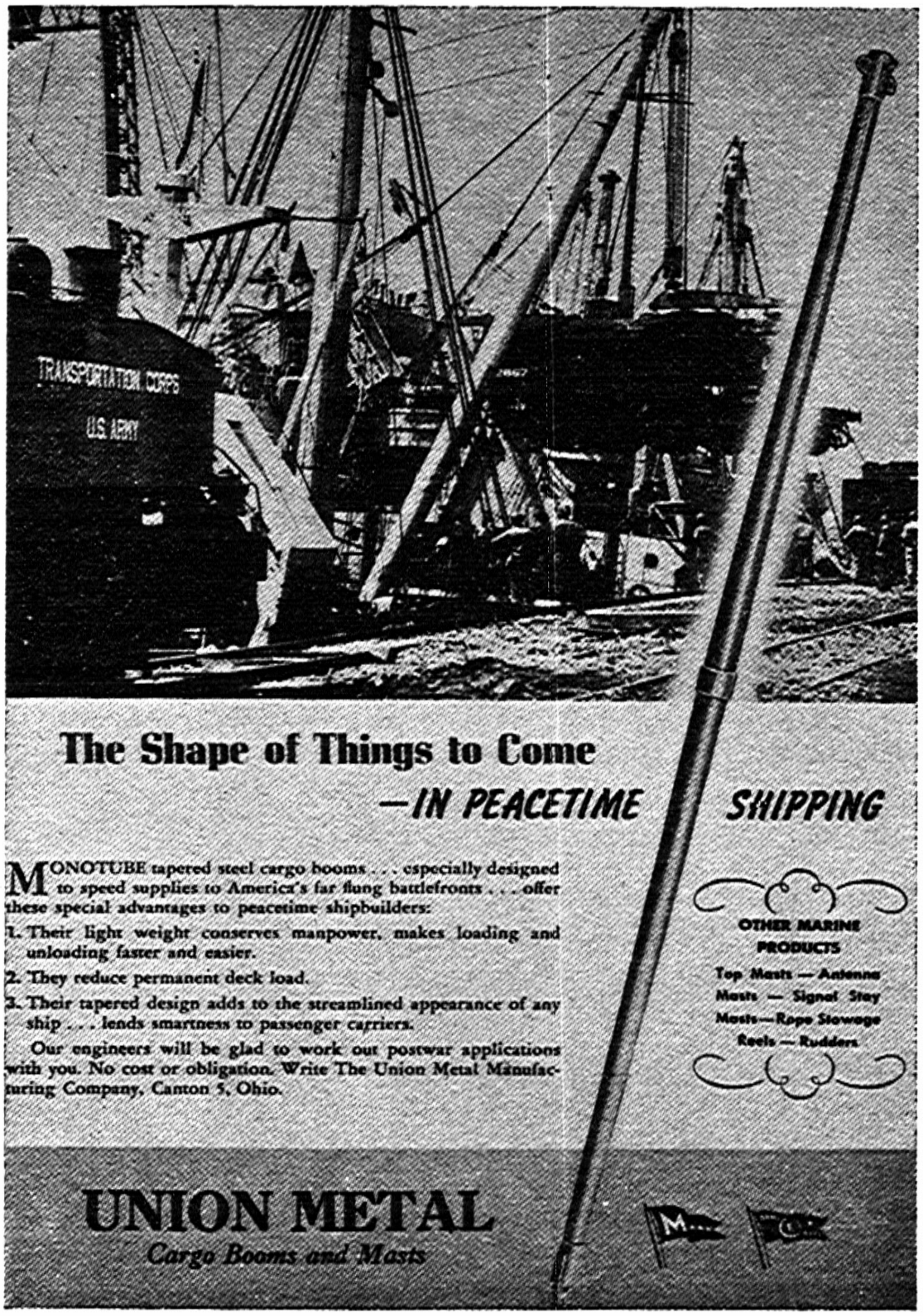
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UNION METAL

Cargo Booms and Masts

REPRINT OF FEBRUARY 1945 ADVERTISEMENT
Plaintiffs' Exhibit 9, Transcript p. 27

United States Court of Appeals For the District of Columbia

No. 9115

OCTOBER TERM, 1945.

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APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA.

BRIEF FOR APPELLANTS.

JURISDICTIONAL STATEMENT

The Facts

On May 20, 1944 the Patent Office Board of Appeals refused a patent on an Application of the Appellants Riemenschneider and Rastetter, which Application was assigned to Appellant The Union Metal Manufacturing Company; whereupon, on November 8, 1944, within six months after such refusal, the Appellants commenced a Civil Action by filing a Complaint in the form of a bill in equity in the District Court for the District of Columbia, the court having cognizance thereof; as provided in the District of Columbia Code, *infra,* page 4.

In so doing the Appellants filed the necessary copy of the Complaint with the Clerk of the District Court for serving upon the Defendant, which was duly served with a summons by the Marshal on November 8, 1944; and on the same day the Solicitor of the Patent Office entered a Notice thereof in the Application file. (Joint App. 155) An Answer to Complaint was duly served and filed on December 5, 1944; all as provided by Section 4915 of the Revised Statutes; and by the Federal Rules of Civil Procedure, *infra.*

The Pleadings

Appellants' Complaint pleads the residence of the Defendant in the District of Columbia, the jurisdiction of the District Court for the District of Columbia and the refusal of a patent, as follows—

> "I.
>
> "(c) Defendant, Conway P. Coe, is Commissioner of Patents of the United States, is a citizen and inhabitant of the State of Maryland, and has an official residence in the United States Patent Office in the Commerce Building, in the City of Washington, in the District of Columbia. (Joint App. 3)
>
> "II.
>
> "This is a civil Action brought under Section 4915 of the Revised Statutes, now Section 63, Title 35, of the United States Code, to obtain Letters Patent upon application therefor, filed in the United States Patent Office, which was refused by the Examiner and by the Board of Appeals; and no appeal has been taken to the United States Court of Customs and Patent Appeals." (Id. 3)
>
> "VII.
>
> "(a) Thereupon, on March 29, 1944, Riemenschneider and Rastetter, duly appealed to the Board of Appeals, which appeal was heard in due course, and on May 20, 1944, the Board of Appeals rendered a

judgment affirming the decision of the Examiner upon the same references, and with only an incidental reference to the showing made before the Examiner; . . ." (Id. 6)

"VIII.

"The Commissioner of Patents has, ever since said judgment of the Board of Appeals, refused and still refuses to grant letters patent upon the aforesaid divisional application, . . ." (Id. 6)

The Statutes and Rules of Procedure

The District of Columbia Code, in **Title 11**, provides that—

> §101[18:1] "The judicial power in the District shall be vested in— . . .
>
> "Second. Superior courts, namely, the District Court of the United States for the District of Columbia, the United States Court of Appeals for the District of Columbia, and the Supreme Court of the United States." (31 Stat. 1190; 34 Stat. 73; 35 Stat. 623; 48 Stat. 926; 49 Stat. 1921)
>
> § 301[18:41] "The District Court of the United States for the District of Columbia shall have general jurisdiction in law and equity," . . . (12 Stat. 762; 31 Stat. 1199; 45 Stat. 1056; 46 Stat. 785; 52 Stat. 584)
>
> § 305[18:43] "The said court shall possess the same powers and exercise the same jurisdiction as the District Courts of the United States, and shall be deemed a court of the United States." (31 Stat. 1199; 36 Stat. 1167)
>
> § 306[18:44] "Said court . . . shall have cognizance of . . . all cases in law and equity between parties, both or either of which shall be resident or be found within said district" . . . (19 Stat. 253)
>
> § 307[18:45] "The District Court of the United States for the District of Columbia has jurisdiction of actions, suits, controversies, and cases, as well in equity as at law, arising under the copyright and patent laws . . . of the United States." (35 Stat. 1084; 44 Stat. 1394)

> §309[18:47] "The justices of said court . . . shall severally possess the powers and exercise the jurisdiction possessed and exercised by the judges of the District Courts of the United States." (31 Stat. 1199; 32 Stat. 522)
>
> § 324[18:91] "The District Court of the United States for the District of Columbia shall have and exercise the same powers and jurisdiction as the other District Courts of the United States." (31 Stat. 1202)
>
> § 325[18:101] "The equity court shall have jurisdiction of all causes heretofore cognizable in equity, . . ." (31 Stat. 1202)

And in **Title 17**, the **District of Columbia Code provides** that—

> § 101[18:26] "Any party aggrieved by any final order, judgment, or decree of the District Court of the United States for the District of Columbia, or of any justice thereof, may appeal therefrom to the said United States Court of Appeals for the District of Columbia; and upon such appeal the United States Court of Appeals for the District of Columbia shall review such order, judgment, or decree, and affirm, reverse, or modify the same as shall be just." . . . (27 Stat. 435; 31 Stat. 1225; 41 Stat. 1312)

Section 4915 of the Revised Statutes, now Section 63, Title 35, of the United States Code, provides that—

> § 63. **Bill in equity to obtain patent**
>
> "Whenever a patent on application is refused by the Board of Appeals . . . the applicant, unless appeal has been taken to the United States Court of Customs and Patent Appeals, . . . may have remedy by bill in equity, if filed within six months after such refusal . . .; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim **or for any part thereof**, as the facts in the case may appear. . . . In all cases where there is no opposing party a copy of the bill shall be served on the commissioner; . . .

> "The testimony and exhibits, or parts thereof, of the record in the Patent Office when admitted shall have the same force and effect as if originally taken and produced in the suit." (27 Stat. 436; 44 Stat. 1336; 45 Stat. 1476; 53 Stat. 1212)

The Rules of Civil Procedure for the District Courts of the United States, provide that—

> "Rule 1. These rules govern the procedure in the district courts of the United States in all suits of a civil nature whether cognizable as cases at law or in equity, . . .
>
> "Rule 2. There shall be one form of action to be known as 'civil action'.
>
> "Rule 3. A civil action is commenced by filing a complaint with the court.
>
> "Rule 4(a). Upon the filing of the complaint the clerk shall forthwith issue a summons and deliver it for service to the marshal . . .
>
> "Rule 4(d). The summons and complaint shall be served together. The plaintiff shall furnish the person making service with such copies as are necessary.
>
> "Rule 73(a). When an appeal is permitted by law from a district court to a circuit court of appeals and within the time prescribed, a party may appeal from a judgment by filing with the district court a notice of appeal. . . .
>
> "Rule 73(b). The notice of appeal shall specify the parties taking the appeal; shall designate the judgment or part thereof appealed from; and shall name the court to which the appeal is taken. Notification of the filing of the notice of appeal shall be given by the clerk by mailing copies thereof to all the parties to the judgment other than the party or parties taking the appeal, but his failure so to do does not affect the validity of the appeal. . . .
>
> "Rule 73(c). Whenever a bond for costs on appeal is required by law, the bond shall be filed with the notice of appeal. The bond shall be in the sum of two hundred and fifty dollars, . . .

The Rules of this Court provide that—

> "Rule 10(a). No final order or judgment of the District Court of the United States for the District of Columbia shall be reviewed by this court unless the appeal shall be taken within three months after the entry of such order or judgment." . . .

In the District Court

The foregoing Facts, Pleadings, Statutes and Rules of Civil Procedure, show that the District Court had Jurisdiction of the Civil Action.

In this Appellate Court

The Jurisdiction of this United States Court of Appeals for the District of Columbia, is expressly established by the District of Columbia Code, in Title 17, § 101[18:26], *supra,* page 4.

Notice of Appeal

A **Notice of Appeal** with a **Bond for Costs** and an **Order for Substitution of Party** were duly filed in the District Court on August 27, 1945 within three months from June 4, 1945 when the Judgment of the District Court was entered, and the Appellants have otherwise complied with the Statutes and the Rules of Procedure; thus giving this Honorable Court Jurisdiction of the Appeal.

POINTS OF APPEAL

Subcombinations are Patentable

1. The District Court failed to apply the established law of patentable invention to **subcombinations** of **allowed claims**, and this failure is sufficient in itself to show that the Conclusions and Judgment below were **clearly erroneous,** irrespective of any other error.

Absence of Anticipation

2. The District Court failed to apply the established law of patentable invention to the undisputed facts of rec-

ord relating to the **prior patent references** relied upon; which failure is **clearly erroneous** because no one or all of the references **anticipates** the structure defined by the present claims, or discloses the **structure** defined by the present claims, or performs the **functions** or **obtains** the **results** of the structures defined by the present claims.

Evidence of Greater Efficiency and Extensive Use By Affidavits in the Patent Office

3 (a) The District Court failed to apply the established law of patentable invention to the undisputed facts established by the Affidavits and Exhibits presented by the Applicants in the Patent Office, showing that their **Monotube** Ship Boom was **less** in **weight, greater** in **strength** than the **Standard** Pipe Boom corresponding to the Lingo patent, and that it **established** a **new industry** and was so **extensively used** by the United States Maritime Commission and Navy, that it **absorbed** substantially **all** of the **capacity** of The Union Metal Manufacturing Company, and required more than **three** (3) **times** the **number** of **employees.** (*Infra,* 14; Joint App. 117, 118)

By Additional Proofs in the District Court

(b) The District Court also failed to apply the **Law** of patentable invention to the **additional facts** conclusively established by the Testimony and Exhibits presented in the District Court by the Applicants, and by the experienced and disinterested Ship Builder and Naval Architect John Fleming, the Ship Master E. W. Sundstrom, the two Naval Architects H. A. Alvig and Ebel, and the Structural Engineer Walter B. Vick, (*Infra,* 16; Joint App. 17 to 39) showing that—

(a) The **Improvement** required **comprehensive calculations,** and

(b) **Recognition** required **special** and **extensive tests,**

(c) Which disclosed **unexpected results,**

(d) That were **revolutionary** in **character,**

(e) Were **radically different,** and

(f) Were an **innovation** over any **prior devices,**

(g) And **satisfied** an **existing need;** and that

(h) The **Improvement** is **lighter** and stronger, and

(i) Is **more efficient** than the **previous Standard,**

(j) And has been so **extensively used** that

(k) It has established a **new industry.**

thus establishing every Fact which is necessary to show the presence of invention in the pending claims, as a matter of Law; and showing that

Under these circumstances, the dismissal of the Action by the District Court was **clearly erroneous,** because it is contrary to the established principles of patent law.

No Opinion or Findings on the Affidavits

4. The District Court failed to render any Opinion or Findings as required by Rule 52 of Civil Procedure, upon the undisputed Facts established by the Affidavits and Exhibits presented by the Applicants; which failure was **clearly erroneous** because those proofs showed the presence of patentable invention in the structure of the pending claims, as a matter of Law.

No Opinion or Findings on Additional Proofs at the Trial

5. The District Court failed to render any **Opinion** or **Findings** as required by Rule 52 of Civil Procedure, upon the undisputed **evidence** of **invention** presented at the trial by the disinterested testimony of expert witnesses and the exhibits submitted by them, in addition to the Patent Office record; which failure was **clearly erroneous** because those proofs established the existence of invention in the structure of the pending claims as a matter of Law, independently of any other error.

When Invention is a Question of Law

6. The **silence** of the District Court with regard to the undisputed Facts, is **clearly erroneous**; because those Facts are submitted in the complete record and show the **presence** of **patentable invention** in the pending claims, which leaves only the ultimate question of **Law** to be determined on Appeal by this Honorable Court.

STATEMENT OF THE CASE

The Invention before this Court in this Appeal is—

A compression member, having many uses, as for instance in radio towers, but best known commercially as a Monotube Ship Boom or Cargo Boom. This compression member comprises a long, hollow, metal tube, circular in cross section to give it equal strength in all directions transversely of its axis, and having its largest diameter midway of its ends to give it maximum compressive strength for minimum weight, while at the same time having a resiliency under transverse loads; whereby—

The improved compression member is not only **lighter** and **stronger** under a **static load** than any ship boom used before; but it is much stronger under a **shock load** than the Standard straight pipe boom, because it can vibrate without breaking, as **unexpectedly** shown by extensive actual performance tests required by the Maritime Commission. (Joint App. 22, 23)

For these reasons, it was **quite revolutionary**, was **radically different** from and was **more efficient** than the ship booms used before, over which it was **quite** an **innovation** and was **not** an **obvious** improvement. (*Infra,* pp. 16, 17)

The Parent Application

On August 4, 1941, Edmund W. Riemenschneider and Harry O. Rastetter filed an Application, Serial No. 405,378, for Letters Patent for Improvements in Radio Antenna Tower shown at page 13, *infra;* containing claims 14 and 15 for a Compression Member *per se,* which was a **subcom-**

bination named or described in each one of the more comprehensive claims 1 to 13 for the Radio Antenna Tower, claims 1 and 14 being as follows:

> "1. An articulated radio antenna tower including **a plurality of tubular compression members** supported end to end upon one another, means providing flexible joints between said members, **each of said members consisting of tubular sections joined together in end-to-end abutment and having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends,** and guy wires attached under tension to the upper end of each said member." (Sub-combination Emphasized)
>
> "14. **A compression member comprising two elongated frustro-conical tubes having their large ends joined in abutment."** *

Claim 14 broadly covered the subject matter of the present application, but is not involved in this Appeal.

The Principal Examiner initially rejected the **Antenna Tower** claims on the **Lingo** patent No. 2,162,675, (Joint App. 47-49) and repeatedly rejected the **Compression Member** claims upon the **Wallace** patent No. 2,173,525 for an Automobile Frame (Id. 45, 52, 53, 55, 59, 130, see pages 12 and 34 *infra.*)

An Interference Intervened

On October 15, 1942, an Interference No. 80,509 was Declared between said application of Riemenschneider and Rastetter, and an application of James W. Moorhead for Mast Construction; in which Interference, Riemenschneider and Rastetter made repeated efforts by a Motion and a Supplement to Motion to Add Counts for the subcombination Compression Member, but the Motion was Denied, and upon a Motion for Reconsideration the denial was repeated by the Principal Examiner with an admission that—

> **"The proposed substitute counts would avoid the reference Wallace in terms."** *

---

* Emphasis supplied in quotations, and see Joint App. 56, 73, 85, 87, 102, 106, 113, 130.

The Present Application

On December 10, 1943 Riemenschneider and Rastetter promptly filed the Divisional Application, Serial No. 513,730 for a new and useful **Compression Member** for Radio Antenna Tower and the Like, as illustrated in the Drawings (Joint App. 110, 111, 112), with Claims 1 and 2 as follows:

> "1. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantially straight axial alignment throughout their length with their large ends joined in abutment, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member."
>
> "2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member." (JOINT APP. 109)

Evidence of Invention

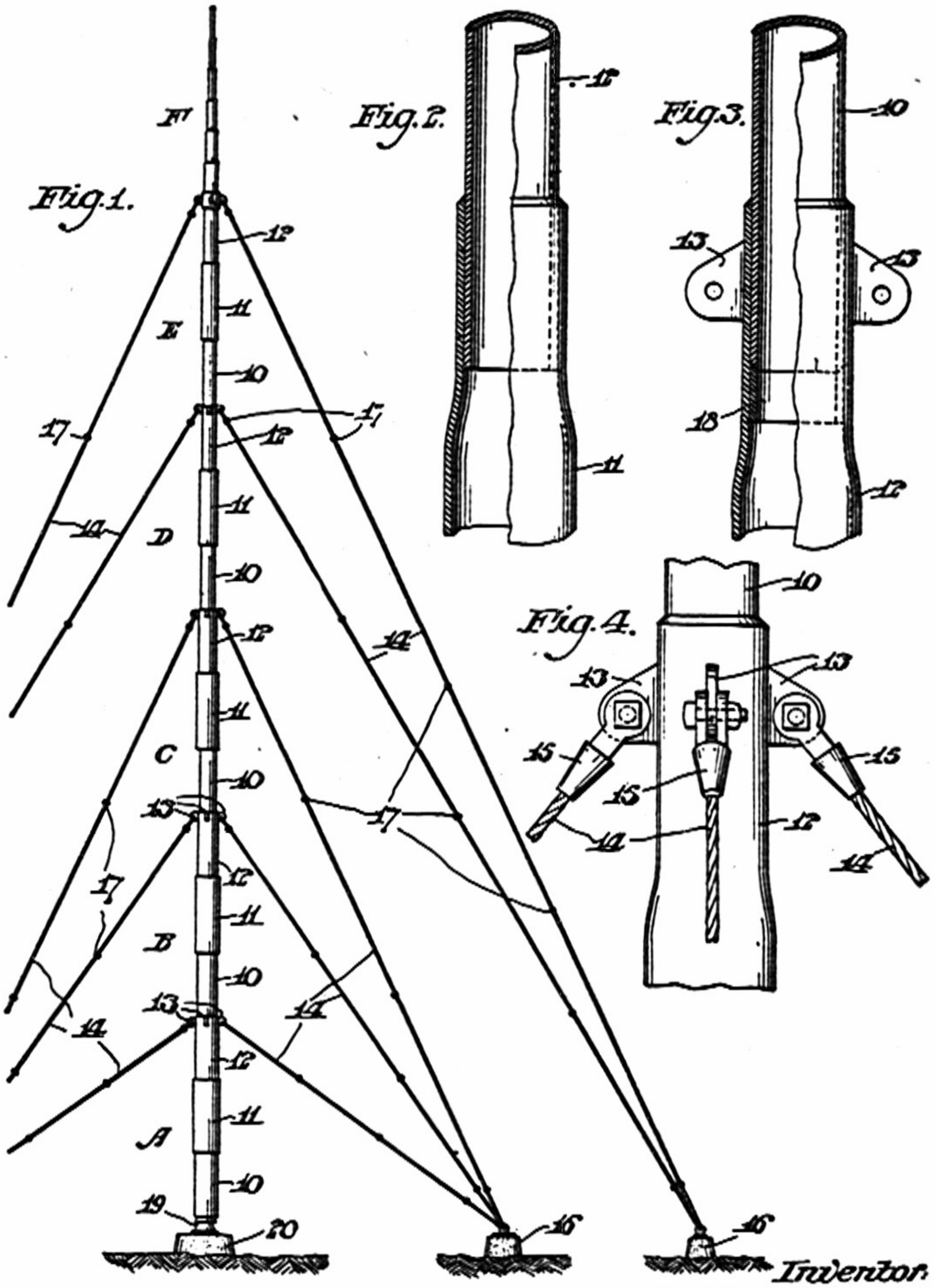
On March 7, 1944, promptly after the Supreme Court stated one rule of **patentable invention** in *Goodyear v. Ray-O-Vac,* 321 U. S. 275, the Applicants filed a paper entitled "**Authorities and Affidavit,**" calling attention to the Goodyear decision, and setting forth the Standard Pipe Boom, in use by the British Admiralty and the United States Maritime Commission and Navy, and constructed as shown in the **Lingo patent** in the next page, 12.

The **Affidavit** also showed that in tests made in 1941 at the request of the American Bureau of Shipping, Riemenschneider's and Rastetter's Compression Member, known as the Monotube Boom, was Twenty (20) percent less in weight, and had a strength of Forty-One (41) percent more than the Standard Pipe Boom, as shown in test sheet on page 58 *infra.*

June 13, 1939. A. E. LINGO **2,162,675**

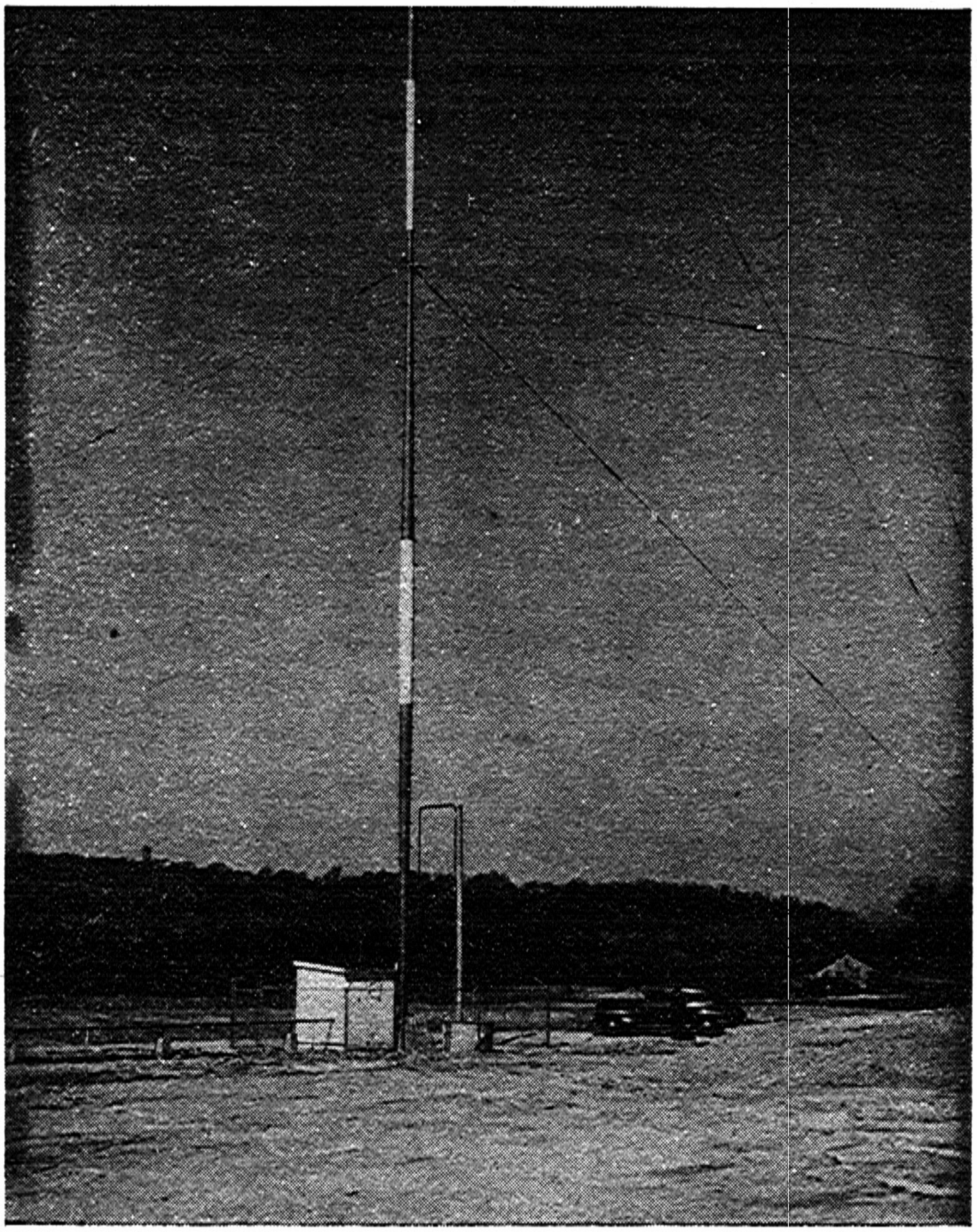
MAST FOR RADIO BROADCASTING

Filed Oct. 8, 1937



Inventor.
Archibald E. Lingo
By Jas. C. [illegible]
Attorney.

LINGO PATENT DRAWING
In Plaintiffs' Exhibit 4. Patent References



RADIO ANTENNA AT AKRON WHKK
Plaintiffs' Exhibit 29, Transcript pp. 103, 105.

The **Affidavit** also set forth that as a result of those tests, in the early part of 1942, the British Admiralty and the United States Maritime Commission and Navy began to use the Monotube Booms, and up to October 1, 1943, they had purchased altogether Twenty-Five Thousand Seven Hundred and Nine (25,709) Monotube Booms; and

That the Manufacture of the Monotube Booms by Appellee, The Union Metal Manufacturing Company, Assignee of the Applicants, had substantially established a **new industry** by utilizing **Eighty-Five** (85) **percent** of its capacity and required an increased number of Employees from **Three Hundred and Fifty** (350) to some **Twelve Hundred** (1200) in two years. (Joint App. 117, 118)

The Final Rejection

Notwithstanding the undisputed evidence of **greater efficiency, extensive use**, and a **new industry**, on March 24, 1944, the Principal Examiner finally rejected the Compression Member claims on the Wallace patent, in view of one or more other prior patents; at the same time denying patentability to an "**outstanding commercial success**" and a "**good product.**" (Joint App. 120)

Appeal to the Board

On March 28, 1944, the Applicants promptly took an Appeal to the Board of Appeals, in which the Primary Examiner's Statement relied entirely upon some Nine (9) prior patents, including the **Wallace** patent, to justify his final rejection, but not including the **Lingo** patent; even though the Monotube Boom was "**more efficient**" than the Standard Pipe Boom in general use, which was constructed in accordance with the Lingo patent shown in page 12.

The Principal Examiner did not present any **Facts** to justify any one of the purely **speculative** arguments and the unsupported **assumptions** that the development of the Compression Member did not involve invention; so that the evidence of **greater efficiency**, **extensive use**, and the establishment of a **new industry** remains **undisputed**.

On May 20, 1944, the Board of Appeals affirmed the decision of the Principal Examiner **solely** upon the references relied upon by the Examiner, and merely referred to Applicant's showing of undisputed facts, as follows—

> "The affidavit referred to by the Examiner shows **commercial success** of applicant's device but he is not satisfied that the success is due to the inventive or some unobvious nature of the construction." (Joint App. 154)

In this manner the Board of Appeals followed the Principal Examiner's reliance **solely** upon the Nine (9) prior patents; and merely echoed and repeated the Examiner's failure to apply the **law of invention** to the **undisputed facts** of record; which implied that if it could be shown that the commercial success **was** due to the inventive or some unobvious nature of the construction, the device would be patentable.

Bill in Equity Under Sec. 4915 R. S.; 35 U. S. C. 63

On November 8, 1944, The Union Metal Manufacturing Company, as Assignee of the present Applicants, Edmund W. Riemenschneider and Harry O. Rastetter, duly filed a Complaint against Conway P. Coe as Commissioner of Patents in the District Court of the United States for the District of Columbia, as Civil Action No. 26,649; wherein they pleaded and amplified the foregoing facts; pointed out the error of the Patent Office tribunals in failing to apply the law of patentable invention to the undisputed facts; and prayed that the Commissioner of Patents be authorized and directed to issue a patent to the plaintiff upon complying with the requirements of law.

An Answer to Complaint was duly filed and served on December 5, 1944 in which all the facts pleaded in the Complaint were **expressly admitted**, with only a disclaimer of sufficient information concerning the allegations of the Affidavits, and an express denial of the errors pleaded in the Complaint; thus leaving only **questions of law** to be determined by the Court upon **undisputed facts.**

The Civil Action was duly tried by the District Court on May 2, 1945, and the allegations of the affidavits were not only confirmed and amplified, but were **supplemented** by **additional facts** established by the testimony of the applicants Riemenschneider and Rastetter, and of the following disinterested witnesses.

Additional Evidence of Invention

John Fleming, an experienced shipbuilder from the Royal Dock Yards at Portsmouth, England, and in the Bethlehem Shipbuilding Corporation in this Country, and now a Naval Architect with Gibbs & Cox, Inc., of New York City; who testified that he was familiar with "**The swage pipe type**" of metal boom for "**something like 28 years in shipbuilding**"; and that the Monotube boom was "**Quite revolutionary and radically different than those we had used in the past.**" (Joint App. 24 to 27)

E. W. Sundstrom, Director of Maritime Commission depots, Captain in the United States Naval Reserve, previously assigned to the British Admiralty, and a Master of Merchant ships from 1917 to 1941; who testified that "**Approximately 75 per cent of all ships built**" **by the Maritime Commission since 1942 have been equipped with the Union Metal Cargo Booms.** (Joint App. 27 to 31)

H. A. Alvig, a graduate Naval architect from Norway, engaged in designing and building ships and in charge of rigging and cargo handling for the Maritime Commission for some six years, and since 1921 engaged in shipbuilding involving the design of cargo booms; who testified that "**this concern had developed a new boom**" that was "**more efficient**" than the "**standard swage pipe boom**", "**which I had seen to fail in tests on shipboard.**" (Joint App. 31 to 33)

Francis G. Ebel, a Naval Architect of Washington, D. C., engaged for seven years with the United States

Maritime Commission and since 1940, investigating the design of booms because of failures in the **standard** swaged type booms; who testified that "**in the year 1940, we had had some failures of booms of that swaged type and we were making investigation of the design of booms**", and that "**This tapered type boom was an innovation**". (Joint App. 37 to 39)

Walter B. Vick, a graduate of Ohio State University in civil structural engineering, engaged for some twelve years as an engineer for the Appellant in charge of Sales of its Monotube poles and of its Cargo Booms since 1940; who testified that "**It was a revolutionary design to**" the members of the Maritime Commission. (Joint App. 33 to 37)

At the close of the trial the District Court declined to receive a Brief on the proofs submitted at the trial, and on June 4, 1945 entered a limited number of Findings of Fact, confined to a consideration of seven of the eight patents cited in the answer; the following Conclusion of Law—

> "1. Plaintiffs are not entitled to receive a patent containing either of the claims in suit.
>
> "2. The complaint should be dismissed with costs against the plaintiff."

and the following Judgment—

> "ADJUDGED that the complaint be and it is hereby dismissed, with costs against the plaintiff."

This Appeal

On August 27, 1945, the District Court entered an Order substituting the Honorable Casper W. Ooms for the Honorable Conway P. Coe as the Defendant Commissioner of Patents, and on the same day the Plaintiffs-Appellants duly filed a Notice of Appeal to this Honorable Court from the Judgment entered in this Action on June 4, 1945.

A Designation of Contents of Record on Appeal was duly acknowledged, Approved and Stipulated by the Attorney for the Defendant-Appellee, and was filed in the District Court on September 4, 1945; comprising—

> "The complete record in the District Court and the Patent Office, including all of the District Court and Patent Office proceedings and Exhibits."

An Order to Transmit Original Exhibits to this Court of Appeals in lieu of copies, and a Certificate of Counsel that the two copies of the Transcript of Record on file, are identical; were duly entered in the District Court on September 28, 1945.

SUMMARY OF ARGUMENT

Subcombinations are Patentable

1. That an inventor may obtain a patent for a new and useful **subcombination** of a more comprehensive combination which has been found to comprise a patentable invention, so as to prevent the free use of the subcombination and to give the inventor the exclusive right to the subcombination as provided in the patent laws, is established by the following decisions—

Railroad Co. v. DuBois (1870) 12 Wall. 47, 60—J. *Strong*

Roberts v. H. P. Nail Co. (N. D. O., E. D.—1892) 53 Fed. 916, 920—J. *Taft*

Special Equipment v. Coe (1945) 324 U. S. 370, 376—C. J. *Stone*

Absence of Anticipation

2. A new and useful improvement is **not anticipated by** and **cannot be denied on** a plurality of prior patents, where no one of the previous inventors, however highly skilled they may have been, were able to produce a structure having the necessary advantages of Applicant's Compression Member; and that it is not permissible by a hindsight **nunc pro tunc** method of taking this and that from the various patents and putting them together to deny a patent to the **first inventor** who was able to **perceive** and **produce** a particular product which **no one** had ever **devised before.**

These principles of patent law have been established in many decisions by this Honorable Court, including the following—

Wach v. Coe (1935) 64 App. D. C. 235, 77 F. 2d. 115, 113—A. J. *Robb*

Hartford v. Coe (1936) 66 App. D. C. 344, 87 F. 2d. 741, 744—A. J. *Van Orsdel*

Kelley v. Coe (1938) 69 App. D. C. 202, 99 F. 2d. 435, 442—A. J. *Miller*

Evidence of Greater Efficiency and Extensive Use

3. Athough a new metal structure is extremely simple, it involves patentable invention when it is **lighter** and **stronger** than a previous Standard structure, and **satisfies** an urgent **need**; especially when it is very **extensively used** after **tests** have shown its **greater efficiency** in Maritime fields.

These rules of patent law have been ignored by the District Court and should be applied by the Honorable Judges of this Court, in view of the following decisions—

Isherwood v. Newport News (E. D. Va.—1922) 289 Fed. 282, 291, 292—D. J. *Groner*

E. R. Wagner v. Porter Steel (7 C.C.A.—1940) 116 F. 2d. 66, 67—C. J. *Sparks*

Goodyear v. Ray-O-Vac (1944) 321 U. S. 275 ~~263~~, 279—J. *Roberts*

No Opinion or Findings on the Affidavits

4. An Opinion or ample Findings of Fact as required by Rule 52 of Civil Procedure, **must** be rendered in such **detail** and **exactness** as to indicate the **subsidiary factual** basis for the **ultimate conclusion.** Partial Findings of Fact are **not binding** on this Court; especially when the evidentiary facts are not in **conflict** or **dispute**, and the trial Court's conclusion rested on **no direct testimony of a witness.**

That the partial Findings of Fact and Conclusions of the Trial Court are **clearly erroneous**, and the absence of any Opinion or complete Findings is likewise **erroneous**, is shown by the following decided cases.

Aetna Life v. Kepler (8 C.C.A.—1941) 116 F. 2d. 1, 5—C. J. *Sanborn*

Kuhn v. Princess Lida (3 C.C.A.—1941) 119 F. 2d. 704, 705—C. J. *Jones*

Kelley v. Everglades (1943) 319 U. S. 415—*Per Curiam*

No Opinion or Findings on the Additional Proofs Presented at the Trial

5(a) The same reasons and authorities given above in Section 4 for the error on the Patent Office record, are emphasized by the absence of any Opinion or Findings on the additional proofs presented at the trial, which is **conclusively erroneous**, because of the **equitable** character of an Action under Section 4915 R.S., which is a proceeding **de novo**, and is prepared and heard upon all complete evidence and upon the **whole merits**, and because the trial court has all the customary power and duty of an equity court to hear all the evidence submitted and to make its own findings; according to—

Interstate Circuit v. U. S. (1938) 304 U. S. 55, 56—*Per Curiam*

American Steel v. Coe (1939) 70 App. D. C. 138, 105 F. 2d. 17, 19—A. J. *Miller*

Nichols v. Minnesota (4 C.C.A.—1940) 109 F. 2d. 162, 163—C. J. *Parker*

(b) With the complete record before it containing all the documentary and testimonial evidence, none of which is disputed and there is no question as to the credibility of any of the witnesses; this Honorable Court may exercise its jurisdiction and power, if not its duty, to take the case as submitted to it by the Complete Record, because it is in just as good a position as the trial court to consider and determine the undisputed Facts and to make its own Conclusions of Law, upon the only question submitted, the presence of patentable invention in the pending claims; according to—

> *Sun Insurance v. Be-Mac* (8 C.C.A.—1942) 132 F. 2d. 535, 536—C. J. *Woodrough*
>
> *Sbicca-Del Mac v. Milius* (8 C.C.A.—1944) 145 F. 2d. 389, 400—C. J. *Thomas*
>
> *Stubbs v. Fulton* (5 C.C.A.—1945) 146 F. 2d. 558, 560—C. J. *Lee*

When Invention is a Question of Law

6. Points 2 and 3 of Appeal both involve situations wherein the ordinary rule that invention is a question of **fact** does not apply.

(a) Thus, when the presence of invention is denied upon a showing of a number of prior patents, as in Point 2 of Appeal, when "**no extrinsic evidence was given or needed to explain terms of art**"; the presence of invention is **purely** a **question** of **Law**, as applied by the Supreme Court in—

> *Mahn v. Harwood* (1884) 112 U. S. 354, 358—Justice *Bradley*
>
> *Market Street v. Rowley* (1895) 155 U. S. 621, 625—Justice *Shiras*
>
> *United States v. Esnault-Pelterie* (1938) 303 U. S. 26, 30—*Per Curiam*

(b) And, when the complete record shows the undisputed Facts, as in Point 3 of Appeal, that the **Improvement** required **comprehensive calculations** and **special** and **extensive tests** to obtain **recognition**, which disclosed **unexpected results**, **revolutionary**, and **radically different** from and an **innovation** over any **prior device**, and **satisfied** an

existing need; the Improvement being **lighter** and **stronger,** and more **efficient** than the **previous Standard,** and has been so **extensively used** that it has established a **new industry**; the situation is believed to establish every Fact which is necessary to show the presence of patentable invention as a **matter** of **Law,** as applied by the Supreme Court in—

Expanded Metal v. Bradford (1909) 214 U. S. 366, 381—Justice *Day*

Diamond Rubber v. Consolidated (1911) 220 U. S. 428, 435—Justice *McKenna*

Minerals Separations v. Hyde (1916) 242 U. S. 261, 270—Justice *Clarke*

ARGUMENT

The Facts set forth in the Statement of the Case have not been, and cannot be controverted; and the authorities cited in the Summary of Argument will be applied to those Facts, and will be amplified as may be desirable.

1. Subcombinations Patentable

In *Railroad Company v. DuBois* (1870) 12 Wall. 47 at page 60 it was said by Mr. Justice *Strong* that—

> "Undoubtedly a patentee may claim and obtain a patent for an **entire combination,** or process, and also for such **parts** of the **combination** or process as are **new** and **useful,** or he may claim and obtain a patent for **both.**"

In *Roberts v. H. P. Nail Co.* (N. D. O., E. D. 1892) 53 Fed. 916, beginning at page 920 it was said by Circuit Judge [later Chief Justice] *Taft* that—

> "In a combination patent it is permissible for the patentee, after claiming his **whole machine,** to claim also the **combination** of **fewer parts** than the whole, provided the combination of the parts is new, even if, taken alone, the combination will not result in any known useful product . . .

> "That patentees may properly protect what is **really new** in the combination, they must therefore be given the opportunity to select out a **part** or **parts** which are new, less than the whole working machine, and by their claims warn the public against the use of them in any other combination to accomplish the same general result as that for which they were used by the patentee in his complete machine."

In *Special Equipment Co. v. Coe* (1945) 324 U. S. 370, beginning at page 376 it was said by Mr. Chief Justice *Stone* that—

> "A patent on the combination embodied in the complete machine, without the allowance of the **subcombination** claims, would not, as the court below thought, prevent the free use of the subcombination. *Corn-Planter Patent,* 23 Wall. 181, 224; *Schumacher v. Cornell,* 96 U. S., 549, 554; *Rowell v. Lindsay,* 113 U. S. 97, 101; *Mercoid Corp. v. Mid-Continent Co.,* 320 U. S. 661, 668.
>
> "Hence denial of a patent on the **subcombination** would deprive the inventor of the benefit of the exclusive right to use the subcombination in the ways specified by the patent laws. It would also leave the public free to use, and thus to appropriate a part, however important, of the inventor's **complete machine,** even though patented.
>
> "If, as we must assume, petitioner has two inventions, **both** of which are **useful** and one of which **includes** the other in its **entirety,** it is evident that the value of the former would be greatly impaired if the **subcombination** invention could be freely used by others. See *Deering v. Winona Harvester Works,* 155 U. S. 286, 302. . . .
>
> "The statutes permit, and it is the settled practice of the Patent Office, many times sustained by this Court, to allow, claims to a **combination** and **also** its **subcombinations.** *Philadelphia, W. & B. R. Co. v. Dubois,* 12 Wall. 47, 60; *Deering v. Winona Harvester Works, supra*; *Leeds & Catlin Co. v. Victor Talking Machine Co.* 213 U. S. 301, 318; *Altoona Theaters v. Tri-Ergon*

Corp. 294 U. S. 477, 487; *Mercoid Corp. v. Mid-Continent Co., supra,* 667."

The present situation comes squarely under the rule of the foregoing decisions, as shown by Claims 1 and 2 covering the complete combination, which have been allowed in the Parent Application, and Claims 1 and 2, covering the subcombination in the Divisional Application, which have been refused allowance by the Patent Office and by the District Court, and constitute the subject matter of this Appeal.

Claims Allowed in the Parent Application

> 1. An articulated radio antenna tower including **a plurality of tubular compression members** supported end to end upon one another, means providing flexible joints between said members, **each of said members consisting of tubular sections joined together in end-to-end abutment and having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends,** and guy wires attached under tension to the upper end of each said member. (JOINT APP. 56)
>
> 2. An articulated radio antenna tower including **a plurality of tubular compression members** supported end to end upon one another, means providing flexible joints between said members, said means including a rounded abutment on one adjoining member and a sleeve secured on the other adjoining member and loosely encircling the end portion of said one adjoining member, **each of said members having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends,** and guy wires attached under tension to the upper end of each said member. (JOINT APP. 57)

The subcombination portions of the allowed claims are emphasized, for comparison with the refused claims.

Claims Refused in the Present Application

> 1. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantially straight axial alignment throughout their length with their large ends joined in abutment, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.
>
> 2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member. (JOINT APP. 109)

A mere comparison of the two sets of claims shows that the "**flexible joints**" and the "**guy wires**" are the only elements in the allowed claims, which are not present in the rejected claims; and that the rejected claims constitute subcombinations which are entitled to be allowed under the rule of Law established by the foregoing decisions.

Under these circumstances, the dismissal of the Action by the District Court was **clearly erroneous,** and justifies a reversal by this Court **without regard to any other error.**

2. Absence of Anticipation

Beyond the disclosure of the prior patents relied upon to show the absence of patentable invention in the pending claims, the Patent Office does not present any other Facts to justify the rejection of the claims.

This situation shows that the action of the Patent Office which is followed literally, without any independent Opinion, by the Findings of Fact, Conclusions of Law and the Judgment of the District Court, to be **clearly erroneous,** in view of the following decisions rendered by this Honorable Court.

In *Wach v. Coe* (1935) 64 App. D. C. 235. 77 F. 2d., 113, at page 115 Associate Justice *Robb* quoted from *Lucke v. Coe,* 63 App. D. C. 61. 69 F. 2d., 379, 383, and applied the same, as follows—

> "'All the patents relied upon by the Patent Office as anticipating Lucke's device were before these engineers, yet, highly skilled in the art as they were, they were unable to do what Lucke has done; namely, produce a machine that is a greater advance over the prior art than any one of the patents referred to by the Patent Office tribunals.
>
> "'It is comparatively easy, now that the Lucke device is in evidence, to take **this and that** from the references and achieve a **nunc pro tunc solution** of the problems confronting Lucke when he made his invention.' . . .
>
> "Where, as here, the new device is also useful and marks a distinct and novel advance in the art, it should receive patent protection.
>
> "For almost 25 years, as we have seen, patents have been granted in this art on devices that proved to be practically worthless, and **yet appellant has been refused a patent on his successful device because the Patent Office has found that, by taking this and that from the unsuccessful patents, the result** achieved by appellant **could have been accomplished.**"

In *Hartford-Empire Co. v. Coe* (1936) 66 App. D. C., 344, 87 F. 2d. 741, at page 744 it was said by Associate Justice *Van Orsdel* that—

> "We have had occasion in many instances to **condemn** the **hindsight nunc pro tunc** method employed to justify the refusal of valuable inventions in which the patentees are entitled to the protection afforded by the Constitution and the laws."

In *Kelley v. Coe* (1938) 69 App. D. C. 202, 99 F. 2d., 435 at page 442 it was said by Associate Justice *Miller* that—

> "The Commissioner's argument in the present case comes down to the same result. He contends that any-

> one skilled in the art could have taken **this** and **that** from the various patents and, **putting them together**, could have devised the Kelley method.
>
> "But the fact remains that, in the face of a **crying need** for a new process or method in the industry, not one of the best engineers in the world, with their attention especially directed to the subject for approximately thirty years, was able to see what Kelley saw, or to produce the result which he produced.
>
> "The evidence in support of appellants' application established beyond doubt their right to the issuance of a patent."

The Primary Examiner did not deny any of the Facts set forth in the Applicants' Affidavit, but accepted them as true by saying in his Statement that—

> "This affidavit shows that applicants sold a **large number** of double tapered booms due to the U. S. and British ship program, and that the tapered boom is **more efficient** than the straight type boom shown in Exhibit B, attached to the affidavit."

And the Board of Appeals likewise admitted that—

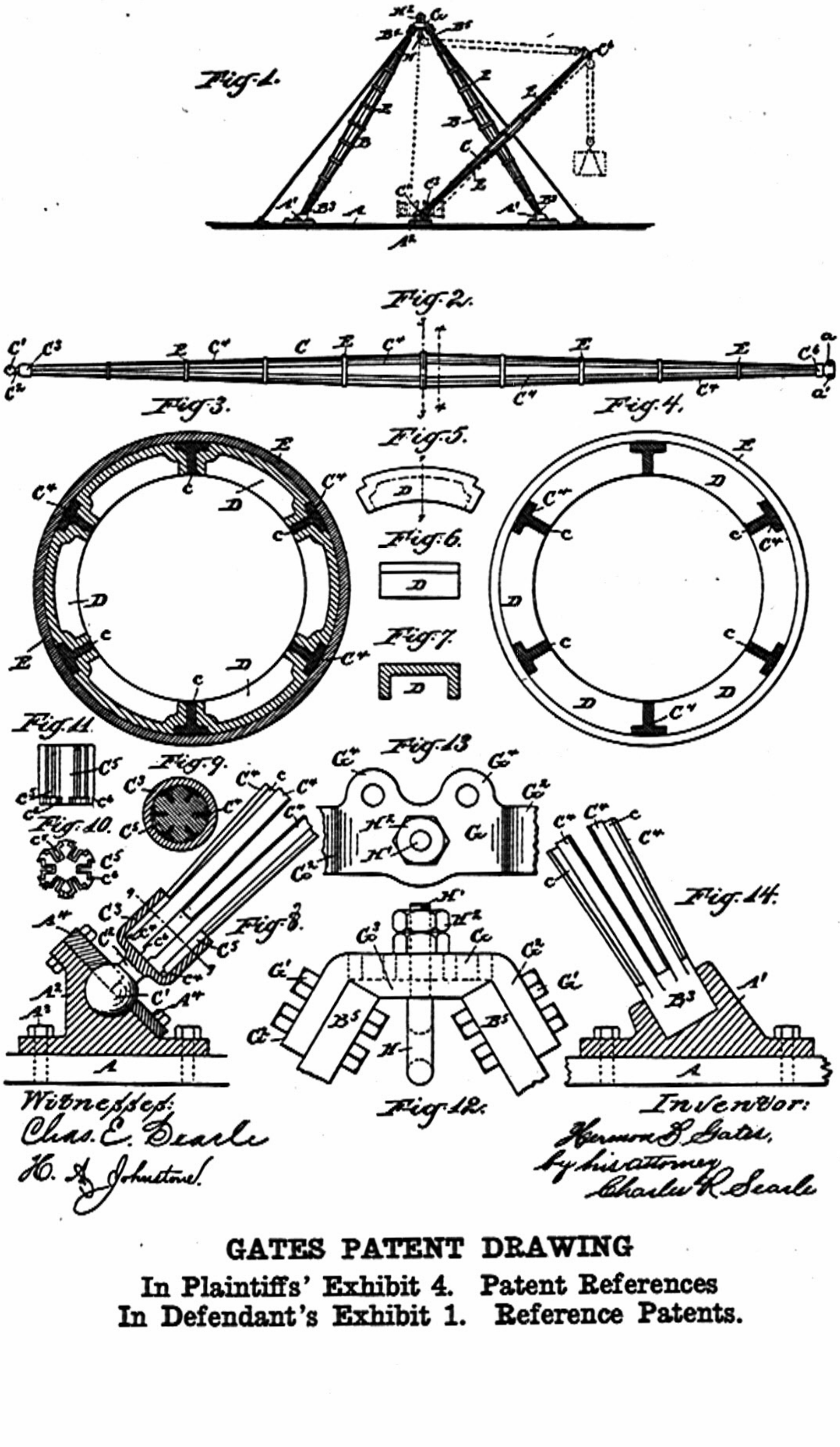
> "The affidavit referred to by the examiner shows **commercial success** of the applicants' device." (Joint App. 154)

The Examiner sought to avoid the effect of these Facts by purely **speculative suppositions, assumptions** and **arguments,** having no foundation whatever in the record, and none of them affecting in any manner the force of the foregoing decisions.

The References Relied Upon by the Patent Office

The various references relied upon by the Patent Office will be considered in the order that they are discussed in the Decision of the Board. None of them **anticipate,** or **even suggest** the subject matter of the pending claims.

H. B. GATES.
DERRICK.
No. 535,537. Patented Mar. 12, 1895.



GATES PATENT DRAWING

In Plaintiffs' Exhibit 4. Patent References
In Defendant's Exhibit 1. Reference Patents.

The Gates Derrick Patent No. 535,537

This patent is **fifty years old,** and while it shows a compression member tapered from a larger middle section toward smaller ends; it is composed of an *"open frame work"* of *"longitudinal"* T-rails C4, with *"segmental spacing-blocks D"* surrounded by *"retaining rings E,"* located considerable distances apart along the T-rails. See previous page.

A mere enumeration of these structural parts is sufficient to show that the member is not made of **"frusto-conical tubes"** with or without a **"central cylindrical tube,"** as called for in applicants' claims; which structural characteristics cannot be ignored.

In any event, such open frame work structures did not find favor with the largest users of Cargo Booms, who utilized the Standard Pipe Booms.

The Kraft Keel Column Patent No. 1,691,818

This patent proposes an improvement upon *"columns comprising longitudinal members and interconnecting lattice work,"* in the construction of airship keels. See next page.

The patent shows a column *"composed of a plurality of relatively long members 10, which are arcuate in cross section, and which are provided at both of the longitudinally extending edges with integral radially outwardly extending flanges 11."* which are bolted together. See patent in Ex. 4.

The description of the structure shows that it is in no proper sense made of **"two elongated frusto-conical tubes,"** as called for in each of applicants' claims; and in any event, the presence of the **"radially outwardly extending flanges"** would not give the member **"equal strength in all lateral directions,"** as also called for in the claims; which characteristics cannot be ignored.

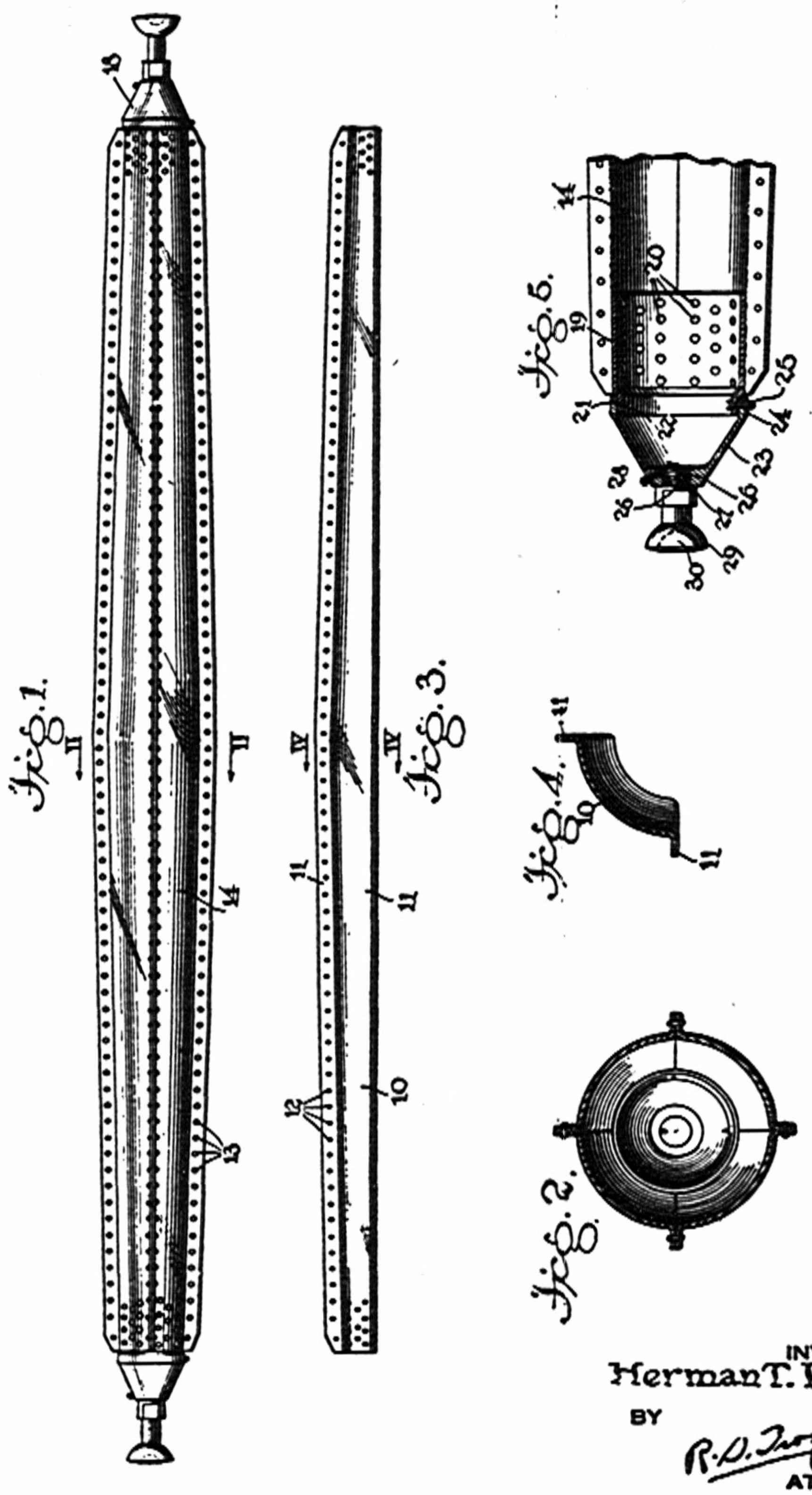
Moreover, the Kraft patent is **ten years old,** and has not changed the **preference** of the **largest users** of Cargo Booms, over the Standard Pipe Boom.

Nov. 13, 1928. 1,691,818

H. T. KRAFT

KEEL COLUMN

Filed Oct. 20, 1924 3 Sheets-Sheet 1



INVENTOR
Herman T. Kraft.
BY
R. D. [illegible]
ATTORNEY

KRAFT PATENT DRAWING

In Plaintiffs' Exhibit 4. Patent References
In Defendant's Exhibit 7. Reference Patents

It is true that the Kraft column **might** have been made with tubular parts like the Riemenschneider's and Pfaff's tapered tubes, as suggested by the Board, **if anyone had thought of doing so**; but it is just as true that for **ten years no one** other than the present applicants **ever thought of doing so.**

Wisdom in the light of **hindsight** does not anticipate, according to the decisions of this Honorable Court, *supra.*

The DeVou Derrick Patent No. 2,008,785

The Board has *"some doubt"* as to the pertinence of this patent; and it is **not true**, as erroneously found by the District Court, that *"The mast member disclosed in the DeVou patent constitutes a structural member of the same form as in claim 1 in suit."* See next page.

There is nothing whatever in the **specification** to show that the mast is made of "**frusto-conical tubes** or that it has "**equal strength in all lateral directions.**"

Moreover, the shade lines in the drawings indicate that the mast 1 is square in cross section. In any event, the **mast** is **not** a **compression member.**

The absence of the necessary disclosure by DeVou is recognized by the Examiner, who only argues that the *"circular cross-section . . . is most strongly suggested by DeVou"*; without asserting that there is any **disclosure** of a **circular section.**

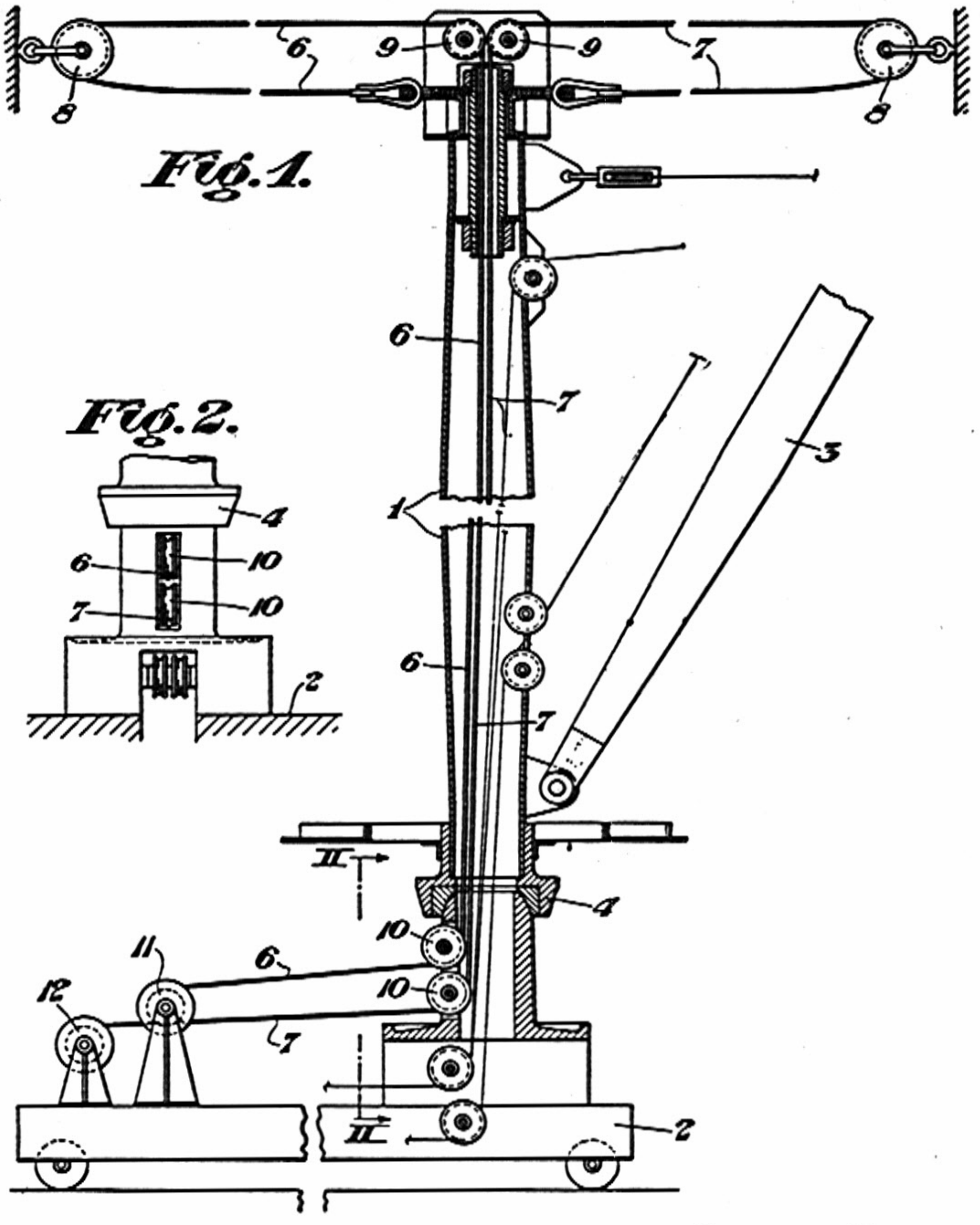
The idea that there is any such suggestion in the DeVou patent is refuted by the statement therein that *"This is like all bridge derricks excepting that the foot-block 4 is constructed", etc.*, which shows that there is nothing in the DeVou design relating to the construction of a **boom,** *per se,* and brings the patent under the rule of *Canda v. Michigan* (6 C.C.A.—1903) 124 Fed. 486 at page 493 that—

> "It is true that it might happen that a casing would be made under the Hardy patent which would be adapted to the use contemplated by Canda.
>
> "But, if so, it would be merely **accidental.**

July 23, 1935. J. L. DE VOU **2,008,785**

DERRICK

Filed March 19, 1932



Inventor:
JAMES L. deVOU,
by: Usina & Rauber
his Attorneys.

DE VOU PATENT DRAWING

In Plaintiffs' Exhibit 4. Patent References
In Defendant's Exhibit 1. Reference Patents

> "It would not result from any **preconception**, nor from anything **specifically directed** by the patentee for organizing his invention."

Likewise in *Gray v. Baird* (7 C.C.A.—1909) 174 Fed. 417, according to a head note, it was held that—

> "A patent for a mechanical combination is not anticipated by a prior patent, which **incidentally** shows a similar arrangement of parts, where such arrangement was not claimed nor designed to perform the function for which it is designed and claimed in the second patent."

It is obvious that the Examiner **would not** and **could not** have allowed the pending claims to DeVou, because there was no **disclosure** upon which to support the same, as required by § 4888 R.S.

Claims can only be obtained by one who **describes** an invention, and cannot be predicated merely upon the disclosure of drawings; according to the decision in *Permutit Co. v. Graver* (1931) 284 U. S. 52, at page 60, where it was said by Mr. Justice *Brandeis* that—

> "While drawings may be referred to for illustration and may be used as an aid in interpreting the specification or claim, they are of no avail where there is an entire **absence** of **description** of the alleged invention or a **failure to claim** it."

These elementary principles of patent law are believed to eliminate DeVou as a pertinent reference.

The Nickles Boom Construction Patent No. 1,941,952

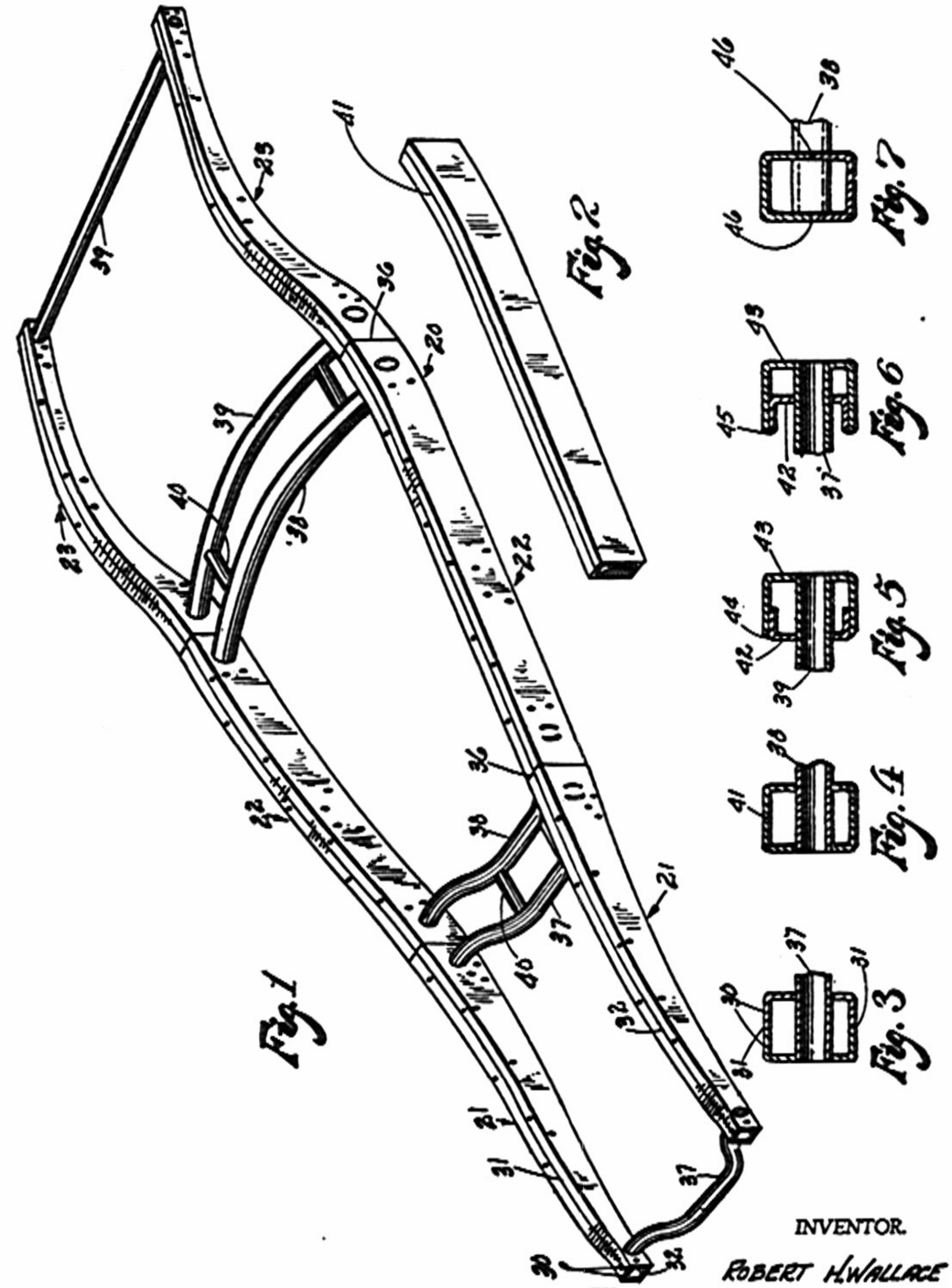
That the reference to the Nickles patent is very far-fetched is recognized by the Board, which only mentions that "*The joining of sections is clearly indicated,*" which is no doubt true; but the pending claims **call for much more than that.** (Id. Ex. 4)

The sections of Nickles are made of longitudinal *corner* members, forming a square section, and connected by "*diagonal lattice or lacing members, struts and tie rods weld-*

Sept. 19, 1939. R. H. WALLACE **2,173,525**

AUTOMOBILE FRAME

Filed March 10, 1936



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WALLACE PATENT DRAWING

In Plaintiffs' Exhibit 4. Patent References
In Defendant's Exhibit 1. Reference Patents

ed together''; which is something entirely different from the ''**frusto-conical**'' and the ''**cylindrical tubes,**'' ''**having equal strength in all lateral directions,**'' called for in the pending claims.

The Wallace Automobile Frame Patent No. 2,173,525

The Board also thinks so little of the Wallace patent, which was the principal reference relied upon by the Examiner prior to the appeal, that it only refers to it by saying that ''*Wallace also shows section joints, and both Wallace and Nickles show the non-tapered central section*''; which implies that these patent are not pertinent to the **more substantial features** and **conditions** of the pending claim. See previous page.

It is true that the Examiner spends some space in arguing the pertinence of Wallace, but he overlooks the fact that the Wallace beam member is not in any proper sense a **compression member,** and that the **beam** is **rectangular** and not circular in section and is not in ''**substantially straight axial alignment throughout its length**''; which is no doubt the reason why the Board does not say much about it.

In General as to the References

Neither the Examiner, nor the Board, nor the District Court found an **anticipation** of either one of the pending claims, by any **one** of the references relied upon; nor by the combination of **two** or **more** of those references; and they only denied the presence of invention by taking ''**this** and **that** from the unsuccessful patents'' by the ''**hindsight nunc pro tunc method**'' in the ''**face of a crying need**'', which has been severely condemned so many times by this Honorable Court. (*supra,* 26, 27)

For this reason, it was **clearly erroneous** for the District Court to make its Findings that it was ''**not invention**'' in Applicants' Improvement—

> "12. . . . to make the boom of the Gates patent of the smooth tapered tubes disclosed in the Riemenschneider and Pfaff patents." (Joint App. 15)

or—

> 13. In view of the Riemenschneider and Pfaff patents . . . to eliminate the flanges on the keel column of the Kraft patent . . . (Id. 15)

or—

> "14. . . . to provide the DeVou member or the Kraft member with a central portion of uniform cross-section, in view of the Nickles or Wallace patents." (Id. 15)

In so doing, the District Court literally followed the purely **fanciful** and **fallacious theories** of the Examiner, and ignored the **evidence of invention** contained in the Application Oath, and the Affidavits of the Applicants, which was **clearly erroneous** for the reasons given under the next heading.

3. Evidence of Greater Efficiency and Extensive Use

The undisputed proofs show that the **Improvement** required **comprehensive** calculations, and that Recognition by the Maritime Commission required **special** and **extensive** tests under **actual operating conditions**; which tests disclosed **unexpected results** that were **revolutionary** in **character** and were an **innovation** over any **prior devices,** shown at pages 12, 28, 30, 32 and 34, *supra.*

The tests also showed that the Improvement is **lighter** and **stronger,** and is **more efficient** than the previous Standard Pipe Boom, and that it has been so **extensively** used as to establish a new industry which has absorbed **substantially all** of the **capacity** of The Union Metal Manufacturing Company, with an increase from some Three Hundred and Fifty (350) to about **Twelve hundred** (1200) in the number of its employees. (Joint App. 117, 118)

These facts, none of which have been controverted, bring the present situation squarely under the rule of the following decisions.

In *Isherwood v. Newport News* (E.D. Va.—1922) 289 Fed. 282, at pages 291 and 292 it was said by District Judge (now Chief Justice) *Groner* that—

> "The advantage of the system is the saving of metal in the **construction** of the ship without **impairing** the strength or the stiffness of the vessel." (p. 201)
>
> "Up to the present time more than 1400 ships, representing approximately 12,000,000 tons deadweight carrying capacity, have been constructed on this system, and, in a recent decision construing the Isherwood English patent, the High Court of Justice, Chancery Division, in an opinion, which was submitted to me in the argument, says:
>
> > "The 'Isherwood invention, like so many other great discoveries, is, when understood, of **extreme simplicity**—the step between failure nad attainment a short one—the **result** of **attainment** almost **epoch-making**. It is a remarkable example of 'the little more' and 'the little less', and, as might be expected, it had as forerunners many an untried or unsuccessful effort in the same field of invention **superficially** similar to itself, and presenting perhaps after its publication the **appearance** even of **anticipation**.' " (p. 292)

See Isherwood patent in Appellants' Exhibit 4.

The foregoing decision on the question of invention, was affirmed in *Newport News v. Isherwood* (1925) 5 F. 2d. 924, wherein at page 935 it was said by District Judge (now Circuit Judge) *Soper,* with the concurrence of Circuit Judges *Woods* and *Rose,* that—

> "**We are in accord** with the **findings** of the **District Judge** in this case, except in the matters of reformation of the contract and interest."

In *E. R. Wagner v. Porter Steel* (7 C.C.A.—1940) 116 F. 2d. 63, at page 67 it was said by Circuit Judge *Sparks* that—

> "Conceding for the purpose of the argument, that the elements are all old and that each element used produces no new result, yet we are convinced that a **beneficial result** has been produced in a **more efficient, economical** and **facile** manner, and we feel constrained to hold the claims **valid.**"

In *Goodyear v. Ray-O-Vac Co.* (1944) 321 U. S. ~~253~~ 275, at page 279 it was said by Mr. Justice *Roberts* that—

> "**Viewed after the event,** the means Anthony adopted seem simple and such as should have been obvious to those who worked in the field, but this is not enough to negative invention.
>
> "During a period of **half a century,** in which the use of flashlight batteries increased enormously, and the manufacturers of flashlight cells were conscious of the defects in them, **no one devised a method of curing such defects.**
>
> "Once the method was discovered it commended itself to the public as evidenced by **marked commercial success.**
>
> "These factors were entitled to weight in determining whether the improvement **amounted to invention** and should, in a close case, **tip the scales in favor of patentability.**
>
> "Accepting, as we do, the findings below, we hold the patent valid and infringed."

In view of these authorities, the denial of invention in the subcombination is clearly erroneous, especially when the Application Oath is "**prima facie** *evidence that the applicant is the first and* **true** *inventor*" (Robinson § 457), and the undisputed facts established by the Applicants' Affidavits show the presence of invention under the foregoing authorities; especially when the Examiner has failed to refer to any **facts** within his knowledge or available to him, to justify the rejection, which he **could** and **should** have done, if he knew of such **facts,** under the following Rule of Practice in the United States Patent Office.

> "66. . . . When reference is made to **facts** within the **personal knowledge** of an **employee** of the office,

> the data shall be as specific as possible, and the reference **must** be supported, when called for, by the **affidavit** of such **employee** . . ."

No one is in a better position than the Examiner or other employees of the Patent Office to know of any **facts** to **refute** the **evidence** of **invention** shown by the Oath and the Affidavit of the Applicants, and the absence of any reference to such **facts** by the Examiner and of any Affidavits to support the same, is proof conclusive that there are no **such facts** to sustain the **fanciful** and **fallacious theories**, and the **speculative suppositions, assumptions and arguments** upon which the pending claims were rejected by the Examiner, and the Board of Appeals.

The Examiner admits that his Argument is "**mere speculation**" (Joint App. 96); and it was well said by Chief Justice *Marshall* in *Fletcher v. Peck,* 6 Cranch 87, 147 that—

> "It is our **duty** to decide on **rights**, but not on **speculations** of parties."

In any event, the silence of the District Court on this subject, and especially its silence on the additional proofs submitted to that Court, referred to under the next two headings, is proof conclusive that there is no foundation of fact to justify the conclusion and judgment of the lower Court; and that the same is **clearly erroneous**, as a matter of law in a Court having all the **powers**, and **duties**, in exercising its "**jurisdiction of actions** . . . **in equity** . . . **arising under the** . . . **patent laws**," as pointed out in the Jurisdictional Statement, *supra,* and by the Supreme Court in *Interstate Circuit v. United States, infra,* 42.

4. No Opinion or Findings on the Affidavits

The same situation brings the present proceeding under the rule of the following decisions—

In *Aetna Life v. Kepler* (8 C.C.A.—1941) 116 F. 2d. 1, at page 5, it was said by Circuit Judge *Sanborn* that—

> "This Court . . . is no longer merely a court of error which considers **only** questions of **law**. It now

> acts as a court of review in all non-jury cases in accordance with the practice which formerly prevailed in equity appeals.
>
> "The findings of fact of the court below to the extent that they are unsupported by **substantial evidence**, or are clearly against the **weight** of the **evidence**, or were induced by an **erroneous view** of the **law**, are **not binding** upon this Court."

In *Kuhn v. Princess Lida* (3 C.C.A.—1941) 119 F. 2d. 704 at page 706, it was said by Circuit Judge *Jones* that—

> "Where the evidentiary facts are not in **conflict** or **dispute**, the conclusions to be drawn therefrom are **for** the **appellate court** upon **review** of the trial court's action. . . .
>
> "An incorrect conclusion by a trial court qualifies as a **'clearly erroneous'** finding, for the correction whereof on appeals Rule 52 (a) **specifically provides.**
>
> "In the instant case, the trial court's **conclusion** . . . rested upon **no direct testimony** of **witnesses.**"

In *Kelley v. Everglades* (1943) 319 U. S. 415, beginning at page 420 it was said *Per Curiam* that—

> "There must be findings, in such **detail** and **exactness** as the nature of the case permits, of **subsidiary facts** on which the **ultimate conclusion** . . . can rationally be predicated.
>
> "The findings in the present case fall short of that requirement. **Appropriate facts** which might have been considered . . . are nowhere referred to in the **opinion** or **findings** below. . . .
>
> "We hold only that there **must be findings**, stated either in the court's opinion or separately, which are sufficient to **indicate** the **factual basis** for the **ultimate conclusion.**"

If there were any facts set forth in the Examiner's Statement, they were not sufficient to support the **ultimate conclusion of no invention,** for the reasons set forth—

In *Mayo v. Canning Co.* (1940) 309 U. S. 310, wherein at page 316 it was said by Mr. Justice *Roberts* that—

> "**Statements of fact** are mingled with **arguments** and **inferences** for which we find no **sufficient basis** either in the affidavits or the oral testimony."

The failure of the District Court to render any Opinion or to enter any Findings of Fact on the evidence of invention presented by the Oath and Affidavits of the Applicants in the Patent Office, is **clearly erroneous,** not only because the conclusion of Court below does not rest on any **direct testimony of witnesses,** but because the Findings of the District Court are not rendered in such **detail** and **exactness** to indicate the **factual** basis for the **ultimate** conclusion, as required by Rule 52 of Civil Procedure; and for these reasons the **ultimate** conclusion of the District Court is **not binding** on this Court of Appeals.

Rule 52 of Civil Procedure provides that—

> "In all actions tried upon the facts without a jury, the court shall find the facts specially and state separately its conclusions of law thereon."

Moreover, the **ultimate conclusion** is **not binding** on this Court under "**the conventional rule that factual findings concurred in by two courts will be accepted by this Court unless clear error is shown,**" referred to but not followed in *United States v. Appalachian Power* (1940) 311 U. S. 377, 403, because the findings below were not concurred in **by two courts,** the Patent Office Examiner and the **Board of Appeals** being merely **administrative agencies,** and this Court is "**not bound by the decision of the Commissioner.**" See *Mahn v. Harwood, infra,* 45.

Seal of this Court is Not a Rubber Stamp

Since the foregoing lines were written, the thought expressed therein has been well stated by Circuit Judge *John D. Martin* of Memphis, Tennessee, in an opening address before the conference of Federal Judges in the Sixth Circuit, at Cincinnati, Ohio on Thursday, October 18, 1945 as follows—

> "It is not in the public interest that the seal of a U. S. Circuit Court of Appeals should by compulsion, become a **rubber stamp** for the **approval** of the all-too-often **arbitrary action** of an **administrative agency.**"
>
> . . .

Judge *Martin* was no doubt referring to the Board of Tax Appeals and the National Labor Relations Board as "**administrative agencies**"; but the Patent Office is likewise an "**administrative agency**", whose "**arbitrary action**" does not bind any Court.

For these reasons this Honorable Court is **not bound** by the conclusion and judgment of the District Court in denying **invention,** which was **clearly erroneous** for want of any Findings of Fact upon the showing of Applicants' Oath and Affidavits in the Patent Office; and it is believed that this Court has the jurisdiction, power and duty to consider and determine the question *de novo,* without remanding the case to the District Court, as in the *Sbicca* case, *infra* 44.

5. No Opinion or Findings on the Additional Proofs Presented at the Trial

(a) The District Court erred in failing to render any Opinion or enter any Findings of Fact on the additional Proofs and Exhibits presented at the trial by the eminently qualified and experienced expert witnesses at the trial; because it had not only the **power** but the **duty** as a court of equity in a suit under R. S. § 4915, to make **special** and **formal finding** upon **all** the **issues** presented by the **additional expert testimony,** as **required** by Rule 52 of **Civil Procedures,** under the following very pertinent decisions.

In *Interstate Circuit v. United States* (1938) 304 U. S. 55 at page 56 it was said *Per Curiam* that—

> "The District Court did not comply with this rule [70½ now 52]. The court made no formal findings. **The court did not find the facts specially and state separately its conclusions of law as the rule required.**"
>
> . . .

> "**The opinion** or conclusions **of the court was not a substitute for the required findings.** A discussion of **portions** of the evidence and the court's reasoning in its opinion do not constitute the **special** and **formal findings** by which it is the **duty** of the court appropriately and specifically to determine **all the issues** which the case presents.
>
> "This is an essential aid to the appellate court in reviewing an equity case. (*Railroad Commission v. Maxcy,* 281 U. S. 82, and cases cited)"

In *American Steel & Wire v. Coe* (1939) 70 App. D. C. 138. 105 F. 2d. 17 at page 19 it was said by Associate Justice *Miller* that—

> "The proceeding under Section 4915 R. S., 35 U. S. C. A. § 63, is a proceeding **de novo in equity,** and, while the inquiry therein must be confined to the invention claimed in the Patent Office, nevertheless, 'It is not a technical appeal from the Patent Office, like that authorized in § 4911 [35 U. S. C. A. § 59a], confined to the case as made in the record of that office, but is **prepared** and **heard** upon **all competent evidence** adduced and **upon** the **whole merits**' ".

In *Nichols v. Minnesota Mining* (4 C.C.A.—1940) 109 F. 2d. 162, at pages 163 and 166 it was said by Circuit Judge *Parker* that—

> "The Patent Office record was before the judge below and was considered by him in connection with **further testimony of Swenson, additional expert testimony** and **evidence** of **experiments** conducted under the court's direction. He properly . . . found that the **additional evidence** brought out the issues **much more clearly** than had theretofore been done, and held that in the light thereof Swenson was clearly shown to have priority (p. 163)
>
> "The evidence offered in the court below . . . consisted of expert testimony and experiments designed to **strengthen** the **contentions** already fully made and supported by testimony **before the Patent Office.**
>
> "A suit under R. S. § 4915 is not in the nature of an appeal but of a **trial de novo**; and the court has all

> the **customary power** of an **equity court** to hear the evidence fully and **make its own findings.**" (p. 166)

(b) And because the entire record is before this Honorable Court with all the documentary and testimonial evidence, which has not been and cannot be controverted in any manner, it has the jurisdiction and the power, and is in as good a position as was the trial Court to consider and determine the Facts and make its own Conclusions of Law upon the presence of patentable invention in the present Improvement, which has been done in the following cases—

In *Sun Insurance v. Be-Mac* (8 C.C.A.—1942) 132 F. 2d. 535, at page 536 it was said by Circuit Judge *Woodrough* that—

> "There was no conflict of evidence and the appeal **imposes** on **this court** the **duty** of ruling upon the **questions** of **law** presented."

In *Sbicca-Del Mac v. Milius Shoe* (8 C.C.A.—1944) 145 F. 2d. 389, at page 400 it was said by Circuit Judge *Thomas* that—

> "The trial court made no findings of fact nor conclusions of law, . . . upon the defenses of **ouster** and **waiver.**
>
> "Since the facts relied upon to **support** these **defenses** are **in the record** and **undisputed** we **shall not remand** the case for this reason alone but will in the **exercise** of our **jurisdiction** under such circumstances **consider** and **determine** them."

In *Stubbs v. Fulton* (5 C.C.A.—1945) 146 F. 2d., 558, at page 560 it was said by Circuit Judge *Lee* that—

> "Few, if any, of the primary facts are in dispute. The dispute has to do with the **inferences** or **conclusions** drawn from the facts.
>
> "Where the facts are not in dispute, **inferences** and **conclusions** drawn by the trial court **are not binding** on the appellate court, which remains free to draw inferences and **conclusions** which in its opinion the findings **reasonably induce.**"

No argument is needed to show the particular pertinence of the foregoing authorities.

6. When Invention is a Question of Law

(a) When the question of invention is considered in connection with prior patents or other proofs when extrinsic evidence is needed for the purpose of explanation or evaluation of the prior art or for other purposes, the general rule is that invention is a question of **Fact.**

But when no such extrinsic evidence is presented or required, as in Point 2 of the Appeal, that rule does not apply, according to the following Supreme Court decisions—

In *Mahn v. Harwood* (1884) 112 U. S. 354 at page 358 it was said by Mr. Justice *Bradley* that—

> "In cases of patents for inventions, a valid defence not given by the statute often arises where the question is, whether the thing patented amounts to a patentable invention. This being a **question of law,** the courts are **not bound** by the decision of the **commissioner,** although he must necessarily pass upon it."

In *Market Street v. Rowley* (1895) 155 U. S. 621 at page 625 it was said by Mr. Justice *Shiras* that—

> "**No extrinsic evidence was given or needed** to explain terms of art, or to apply the descriptions to the subject-matter, so that the **court** was **able,** from mere comparison, to say what was the **invention** described in each, and to affirm from such **mere comparison** whether the inventions were or were not the same.
>
> "The question was, then, one of **pure construction** and **not of evidence,** and consequently was **matter of law** for the court, without any **auxiliary fact** to be passed upon by the jury."

In *United States v. Esnault-Pelterie* (1938) 303 U. S. 26, at page 30 the Rule of Decision which is particularly pertinent here was repeated *Per Curiam* as follows:

> "Where, with **all the evidence** before the court, it appears that no **substantial dispute** of **fact** is presented, and that the case may be determined by a **mere comparison** of structures and extrinsic evidence is not needed for purposes of explanation, or evaluation or prior art, or to resolve questions of the application of descriptions to subject-matter, the questions of invention and infringement may be determined as **questions of law.** *Heald v. Rice,* 104 U. S. 737, 749; *Singer Mfg. Co. v. Cramer,* 192 U. S. 265, 275; *Sanitary Refrigerator Co. v. Winters,* 280 U. S. 30, 36."

(b) And when the complete record shows the undisputed Facts, as in Point 3 of Appeal, that the **Improvement** required **comprehensive calculations** and **special** and **extensive tests** to obtain **recognition,** which disclosed **unexpected results, revolutionary** and **radically different** from and an **innovation** over any **prior device,** and **satisfied** an **existing need**; the Improvement being **lighter** and **stronger,** and more **efficient** than the **previous Standard,** and has been so **extensively used** that it has established a **new industry**; the situation is believed to establish every **Fact** which is necessary to show the presence of patentable invention as a matter of **Law,** as applied by the Supreme Court in—

Expanded Metal v. Bradford (1909) 214 U. S. 366, at page 381, wherein it was said by Mr. Justice *Day* that—

> "The fact that the invention seems simple after it is made does not determine the question; if this were the rule many of the most beneficial patents would be stricken down.
>
> "It may be safely said that if those skilled in the mechanical arts are working in a given field and have failed after repeated efforts to discover a certain new and useful improvement, that he who first makes the discovery has done more than make the **obvious** improvement which would suggest itself to a mechanic skilled in the art, and is entitled to protection as an inventor.

> "There is nothing in the prior art that **suggests** the combined operation of the Golding patent in suit. It is perfectly well settled that a new combination of elements, old in themselves, but which produce a new and useful result, entitles the inventor to the protection of a patent."

Also, in *Diamond Rubber v. Consolidated Tire* (1911) 220 U. S. 428, at page 435 it was said by Mr. Justice *McKenna* that—

> **"If he has added a new and valuable article to the world's utilities he is entitled to the rank and protection of an inventor."**

and, as pertinent to the substitution on war vessels, of the **Monotube Boom** for the **Standard Pipe Boom**; at page 441 it was said further by Mr. Justice *McKenna* that—

> "The prior art was open to the Rubber Company. That **'art was crowded,'** it says, 'with numerous prototypes and predecessors' of the Grant tire, and they, it is insisted, possessed all of the qualities which the **dreams** of **experts** attributed to the Grant tire.
>
> "And yet the Rubber Company uses the Grant tire. It gives the **tribute** of its **praise** to the **prior art**; it gives the Grant tire the **tribute** of its **imitation** as others have done. And yet the narrowness of the claims seemed to make legal evasion easy."

The adoption and use by the Maritime Commission and the Navy on Liberty Ships and War Vessels, refutes the reasoning of the Patent Office Examiner, that the prior art devices possessed all of the qualities which the **dreams of the Examiners** attributed to the Monotube Boom.

In *Minerals Separation v. Hyde* (1916) 242 U. S. 261, at page 270 it was said by Mr. Justice *Clarke* that—

> "Because of its **economy** and **simplicity**, it has largely replaced all earlier processes.
>
> "This, of itself, is persuasive **evidence** of that **invention** which it is the purpose of the patent laws to **reward** and **protect**."

EFFECT OF THE AUTHORITIES

1. **The conclusive error** of the District Court in refusing to authorize a patent for subcombinations of allowed claims, is supplemented by its subservient assent to the arbitrary action of an administrative agency (2); by the silence and absence of any Opinion on the evidence of invention in the Affidavits, the Additional Testimony, and the Exhibits, (3a,b); by the omission of any Findings of Fact relating to the same (4&5a,b); and the failure to apply the Law to the undisputed, if not the admitted Facts (6a,b).

The Supreme Court has expressly held on March 26 of this year, that "**The statutes permit, and it is a settled practice of the Patent Office, many times sustained by this Court, to allow, claims to a combination and also its subcombinations.**" (p. 23 *supra*)

2. **The additional error** of combining several prior patents and finding that Applicants' Improvement did not involve invention, was an arbitrary action, in the absence of any anticipating device or disclosure, when none of the compression members in the references relied upon were ever used for a Ship Boom or a Cargo Boom for more than Twenty-eight (28) years, during which a defective swage type, straight pipe boom was used (**Fleming**, Joint App. 25); over which the Improvement was admitted to be a "**good product**" and a "**commercial success.**" (Joint App., 120)

This arbitrary action was merely a "**hindsight nunc pro tunc**" method of taking "**this and that from various patents**" when there was a "**crying need**" for the present Improvement. Such an action has been properly condemned by this Honorable Court. (pp. 26, 27 *supra*)

3. **The foregoing error** is compounded by the absence of any reference to, or Opinion by the District Court on, the additional evidence of invention in the Improvement, submitted by the Applicants and five widely experienced and

entirely disinterested witnesses, who established, by the undisputed testimony and documentary exhibits, that Applicants' Monotube Boom was "**quite revolutionary and radically different from those . . . used in the past**" (**Fleming**, Joint App. 26); and that "**approximately 75 per cent of all ships built**" by the Maritime Commission since 1942 have been equipped with the Monotube Boom (**Sundstrom**, Joint App. 30), because it is lighter and stronger and more efficient than the previous Standard Pipe Boom which **Alvig** "**had seen to fail on tests on shipboard**" (Joint App. 33).

These facts bring the present situation squarely under the *Isherwood* case, where "**extensive simplicity**" resulted in "**an attainment almost epoch-making**" (p. 37 *supra*), and constitutes an "**arbitrary action**" in which the Improvement was "**viewed after the event,**" as in the *Goodyear* case. (pp. ~~41~~ 11, 38 *supra*)

4. **The substantive errors** 1, 2 and 3, are supplemented by the **procedural error** of the District Court in failing to enter any Findings of Fact on the "**affidavit and exhibits in the Patent Office**" (2), as required by Rule 52 of Civil Procedure; because in 1943, the Supreme Court said that "**there must be findings, in such detail and exactness as the nature of the case permits, of subsidiary facts on which the ultimate conclusions . . . can rationally be predicated.**" (pp. 40, 41 *supra*).

This obvious error, however, does not require this Court to remand the case to the District Court, because "**the evidentiary facts are not in conflict or dispute,**" and "**the conclusions to be drawn therefrom are for the Appellate Court upon review of the trial court's action.**" (pp. 40, 44 *supra*).

Moreover, this Court is not bound by the decision of the Commissioner and its seal is not "**a rubber stamp for the approval of the all-too-often arbitrary action of an administrative agency.**" (p. 41 *supra*).

5(a). **The procedural error** of the District Court in failing to enter any Findings of Fact on the Additional Proofs presented at the trial is even more damaging, because the case was prepared and was entitled to be "**heard upon all competent evidence adduced and upon the whole merits**" (p. 43 *supra*), and it was "**the duty of the Court appropriately and specifically to determine all the issues which the case presents.**" (p. 42 *supra*)

(b). And again, **it is not necessary to remand the case,** because this Honorable Court has the entire record and the undisputed proofs before it, which "**imposes on this Court the duty of ruling upon the questions of law presented,**" and to "**consider and determine them**"; and because the "**inferences and conclusions drawn by the trial court are not binding upon the appellate court.**" (p. 44 *supra*)

6(a). When, as here, "**No extrinsic evidence was given or needed to explain terms of art,**" the question of invention is "**one of pure construction and not of evidence, and consequently was matter of law for the court,**" and "**may be determined by a mere comparison of structures . . . as questions of law**"; as determined by the Supreme Court of 1938 in the *Esnault-Pelterie* case. (p. 45 *supra*)

(b). And when, as here, "**The fact that the invention seems simple after it is made does not determine the question**" of patentability; and "**If he has added a new and valuable article to the world's utility, he is entitled to the rank and protection of an inventor**"; especially when "**because of its economy and simplicity, it has largely replaced all earlier processes**"; as held by the Supreme Court in the *Diamond-Rubber* and *Minerals Separation* cases. (p. 47 *supra*)

Importance of the Improvement

The Improvement was conceived and the Marine Boom Drawing, page 60, embodying the Improvement, was made on March 3, 1938, by the Engineers of The Union Metal Manufacturing Company, for the purpose of "**developing new products for the Company to manufacture**" (Joint App. 18), well before the beginning of the second World War; and the Company "**received within the last month** (in April, 1945) **quite a large order for booms which are to be shipped and installed on peacetime ships after the war is over.**" (**Vick**, Id. 36)

The imperative need created by the war, however, developed an urgent demand for an improvement over the Standard Pipe Boom, because in 1940 the Maritime Commission "**had had some failures of booms of that swaged type**" (**Ebel**, Id. 37). The advantage of the Improvement was not recognized by the Maritime Commission until actual tests showed that "**for the same weight our boom was 60 percent stronger**" than "**any boom used previously on any ship**" (**Riem**, Id. 22); and that the boom "**withstood the standard Maritime Commission test, overload test, successfully, without any signs of weakness or permanent deformation of any kind.**" (**Ebel**, Id. 38)

The Bending Test at Canton is depicted at page 59 *infra*, and other tests are shown at pages 56 and 57 *infra*.

The Importance of the Improvement is shown by the fact that the first order received from the Maritime Commission was by a telegram on July 3, 1942, Exhibit 19, which constituted "**a wire commitment for 388 ships, of five-ton booms, total number being 388 booms; and 979 15-ton booms, and 379 50-ton booms**"; and by the fact that up to April, 1945, the Union Metal Company "**had sold in excess of 51,000 booms**" to the Maritime Commission. (**Vick** Id. 36)

The Imminent and Vital Need of the Maritime Commission for the most efficient Cargo Boom to handle the heavy wartime equipment, is reflected in the Biennial Report of The Chief of Staff of the United States Army, by **General George C. Marshall,** from July 1, 1943 to June 30, 1945, as published for the War Department by Simon and Schuster, at page 10, as follows:

> "Even though a full-scale Mediterranean campaign now was imminent, it was resolved at Casablanca to resume amassing in the United Kingdom as quickly as possible the forces necessary to invade Western Europe. **This build-up was to be one of the most tremendous logistical undertakings in military history** . . .
>
> "Parks for 50,000 military vehicles were planned; 270 miles of railroad had to be constructed. **More than 20,000 railroad cars and 1,000 locomotives were to be shipped to the United Kingdom"** . . .
>
> "By July 1943 the flow of materiel from the United States to Britain had reached 753,000 tons a month which later was to increase to 1,900,000 tons in the month preceding the attack."

and at page 99, as follows:

> "American raw materials made possible a large percentage of Britain's own war production. **But in addition fully fabricated equipment shipped to Britain in the last two years included 76,737 jeeps, 98,207 trucks, 12,431 tanks, and 1,031 pieces of heavy artillery.**
>
> "The Soviet Union received thousands of tons of American raw materials to feed its own factories as well as fully fabricated equipment. **In the two years covered by this report we shipped the Soviets 28,356 jeeps, 218,888 trucks, 4,177 tanks, and 252 pieces of heavy artillery.** The mobility and supply of the great Red Army was further increased **by American locomotives, rails, and rolling stock."**

and at page 56, as follows:

> **"China's most critical needs were in trucks and rolling stock, artillery, tanks, and other heavy equipment."**

The use of Monotube Booms for loading and unloading Locomotives and other heavy equipment is well illustrated in the Frontispiece, and for handling other heavy war equipment, in pages 54 and 55, *infra.*

IN CONCLUSION

The complete story of the conception, development and achievement of the Monotube Boom, is so well told by the Applicants, Riemenschneider and Rastetter, and by the especially skilled witnesses, Fleming, Sundstrom, Alvig, Ebel, and Vick, in the Excerpts From the Testimony in the Joint Appendix, beginning at page 17; that no further comments are necessary to show the presence of Invention in the Compression Member defined by the pending claims; and to afford this Honorable Court an adequate basis for reversing a District Court and authorizing the granting of Letters Patent for the invention.

Very respectfully submitted,

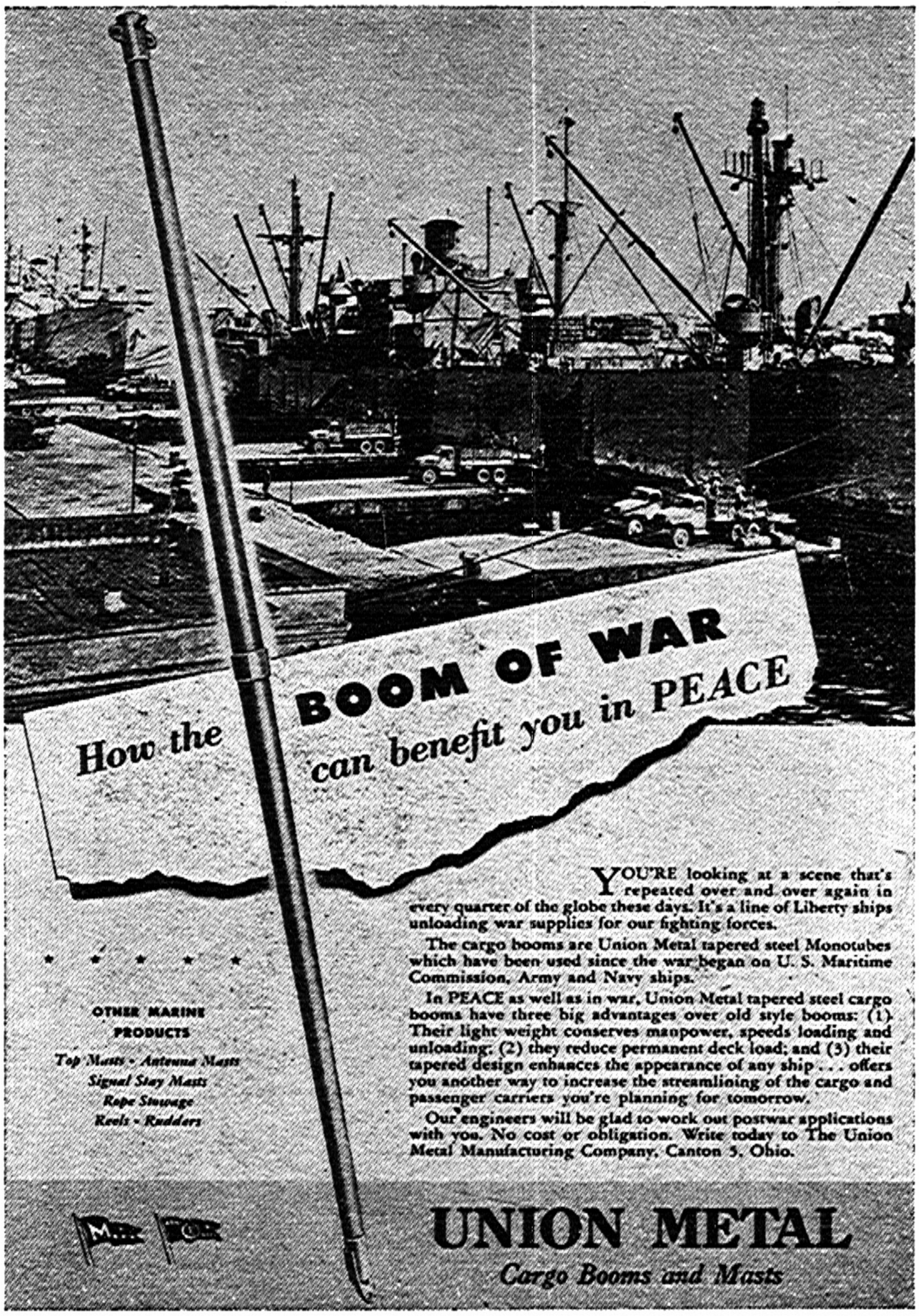
Harry Frease,
Harter Bank Bldg., Canton, Ohio,

Edward R. Walton, Jr.,
Munsey Bldg., Washington, D. C.,
Attorneys for Appellants.

Everett R. Hamilton,
Joseph Frease,
Harter Bank Bldg., Canton, Ohio,
Of Counsel.

Washington, D. C.
November , 1945.

Plaintiffs' Exhibit 10



How the **BOOM OF WAR** can benefit you in PEACE

YOU'RE looking at a scene that's repeated over and over again in every quarter of the globe these days. It's a line of Liberty ships unloading war supplies for our fighting forces.

The cargo booms are Union Metal tapered steel Monotubes which have been used since the war began on U. S. Maritime Commission, Army and Navy ships.

In PEACE as well as in war, Union Metal tapered steel cargo booms have three big advantages over old style booms: (1) Their light weight conserves manpower, speeds loading and unloading; (2) they reduce permanent deck load; and (3) their tapered design enhances the appearance of any ship . . . offers you another way to increase the streamlining of the cargo and passenger carriers you're planning for tomorrow.

Our engineers will be glad to work out postwar applications with you. No cost or obligation. Write today to The Union Metal Manufacturing Company, Canton 5, Ohio.

* * * * *

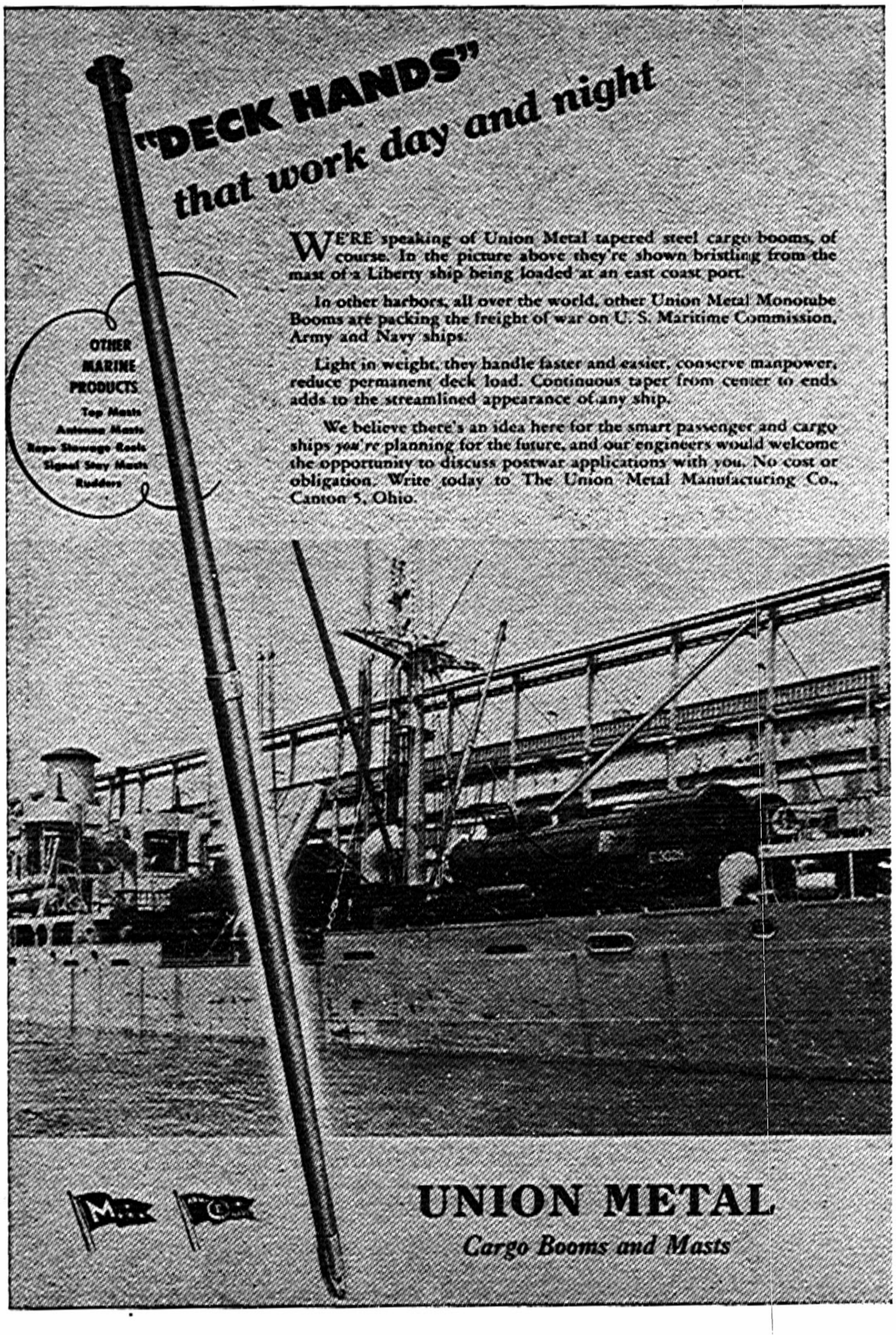
OTHER MARINE PRODUCTS

Top Masts - Antenna Masts
Signal Stay Masts
Rope Stowage
Reels - Rudders

UNION METAL

Cargo Booms and Masts

REPRINT OF MARCH 1945 ADVERTISEMENT
Plaintiffs' Exhibit 10, Transcript p. 27.



"DECK HANDS" that work day and night

WE'RE speaking of Union Metal tapered steel cargo booms, of course. In the picture above they're shown bristling from the mast of a Liberty ship being loaded at an east coast port.

In other harbors, all over the world, other Union Metal Monotube Booms are packing the freight of war on U. S. Maritime Commission, Army and Navy ships.

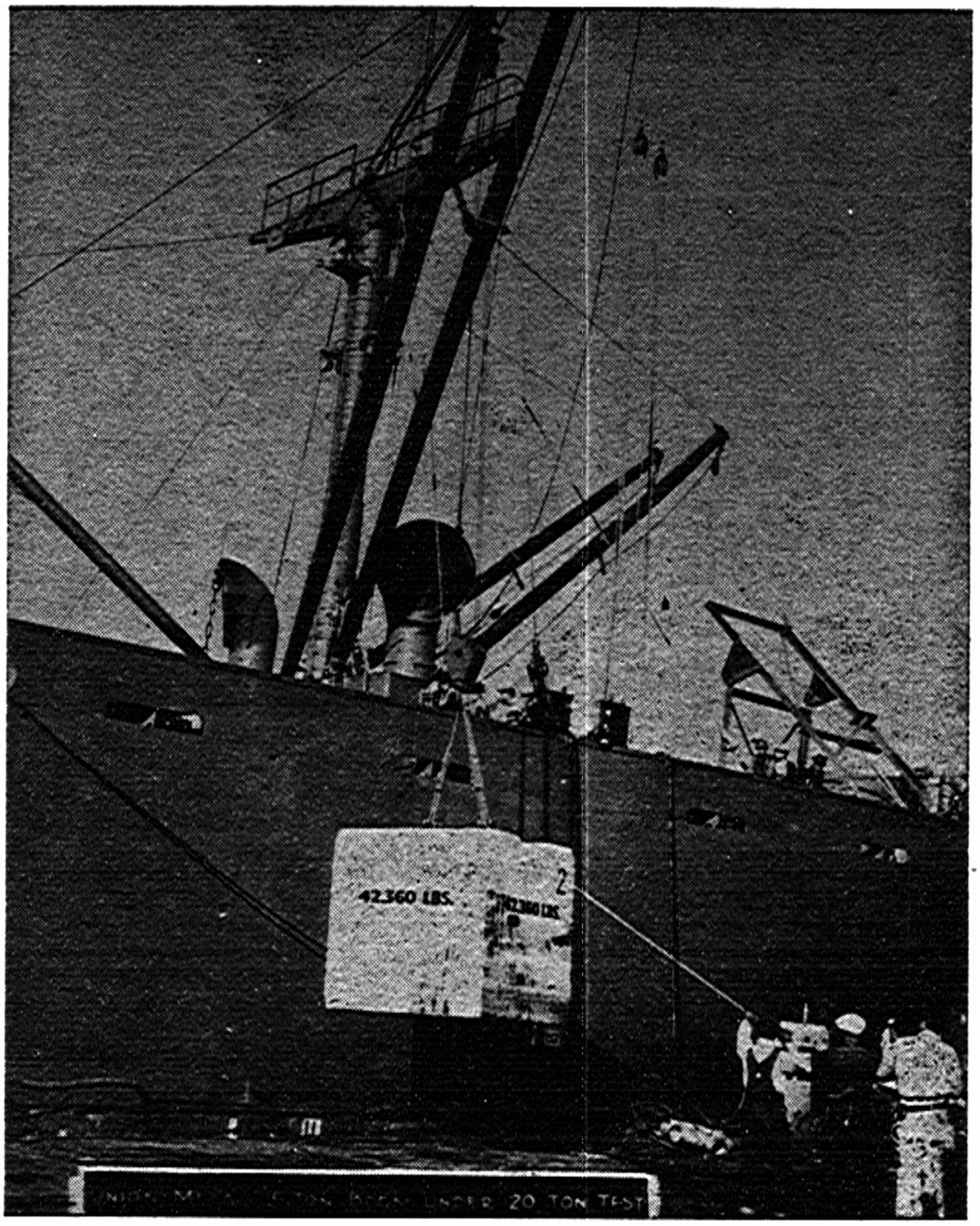
Light in weight, they handle faster and easier, conserve manpower, reduce permanent deck load. Continuous taper from center to ends adds to the streamlined appearance of any ship.

We believe there's an idea here for the smart passenger and cargo ships *you're* planning for the future, and our engineers would welcome the opportunity to discuss postwar applications with you. No cost or obligation. Write today to The Union Metal Manufacturing Co., Canton 5, Ohio.

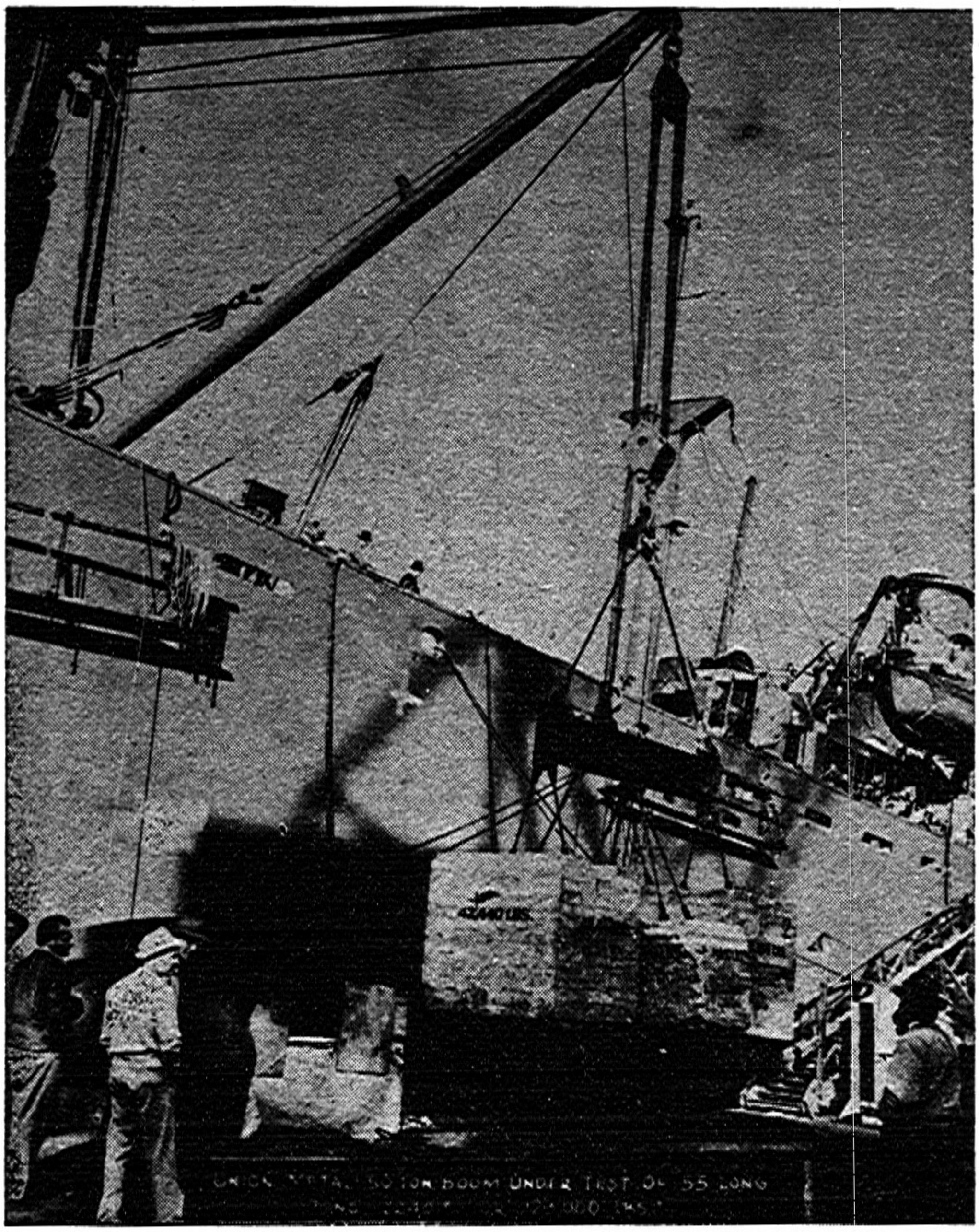
OTHER MARINE PRODUCTS
Top Masts
Antenna Masts
Rope Stowage Reels
Signal Stay Masts
Rudders

UNION METAL
Cargo Booms and Masts

REPRINT OF APRIL 1945 ADVERTISEMENT
Plaintiffs' Exhibit 11, Transcript p. 27.



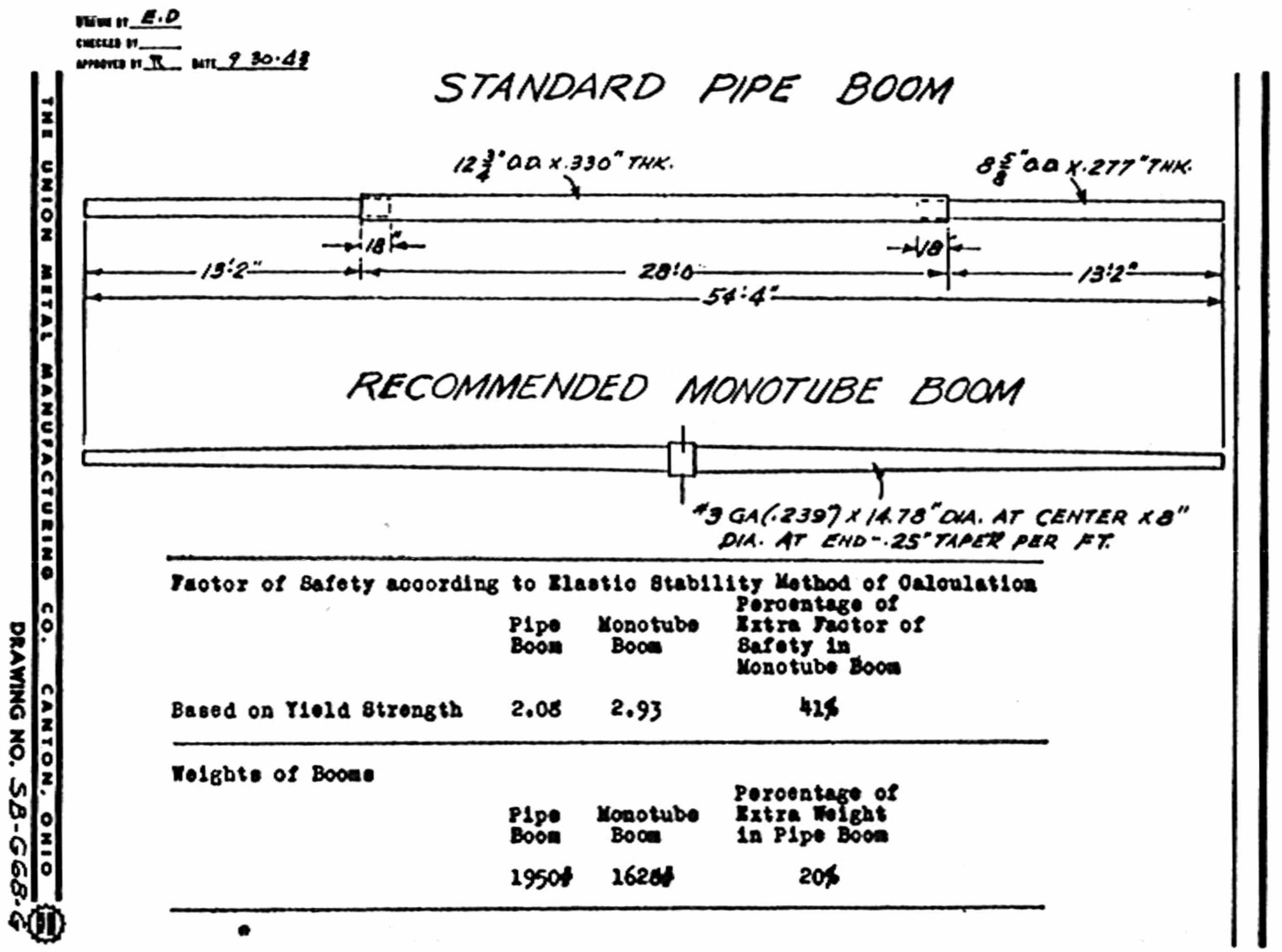
UNION METAL 15 TON BOOM UNDER 20 TON TEST
Applicants' Exhibit E
In PLAINTIFF'S EXHIBIT 3 at Page 21



UNION METAL 50 TON BOOM UNDER TEST OF 55 LONG TONS

Applicants' Exhibit F

In PLAINTIFFS' EXHIBIT 3 at Page 22


DRAWN BY E.D
CHECKED BY
APPROVED BY R DATE 9 30-48
STANDARD PIPE BOOM
12¾" O.D. x .330" THK.
8⅝" O.D. x .277" THK.
18"
18"
13'2"
28'0"
13'2"
54'4"
RECOMMENDED MONOTUBE BOOM
#3 GA (.239) x 14.78" DIA. AT CENTER x 8" DIA. AT END - .25" TAPER PER FT.
THE UNION METAL MANUFACTURING CO. CANTON, OHIO
DRAWING NO. SB-G68-G

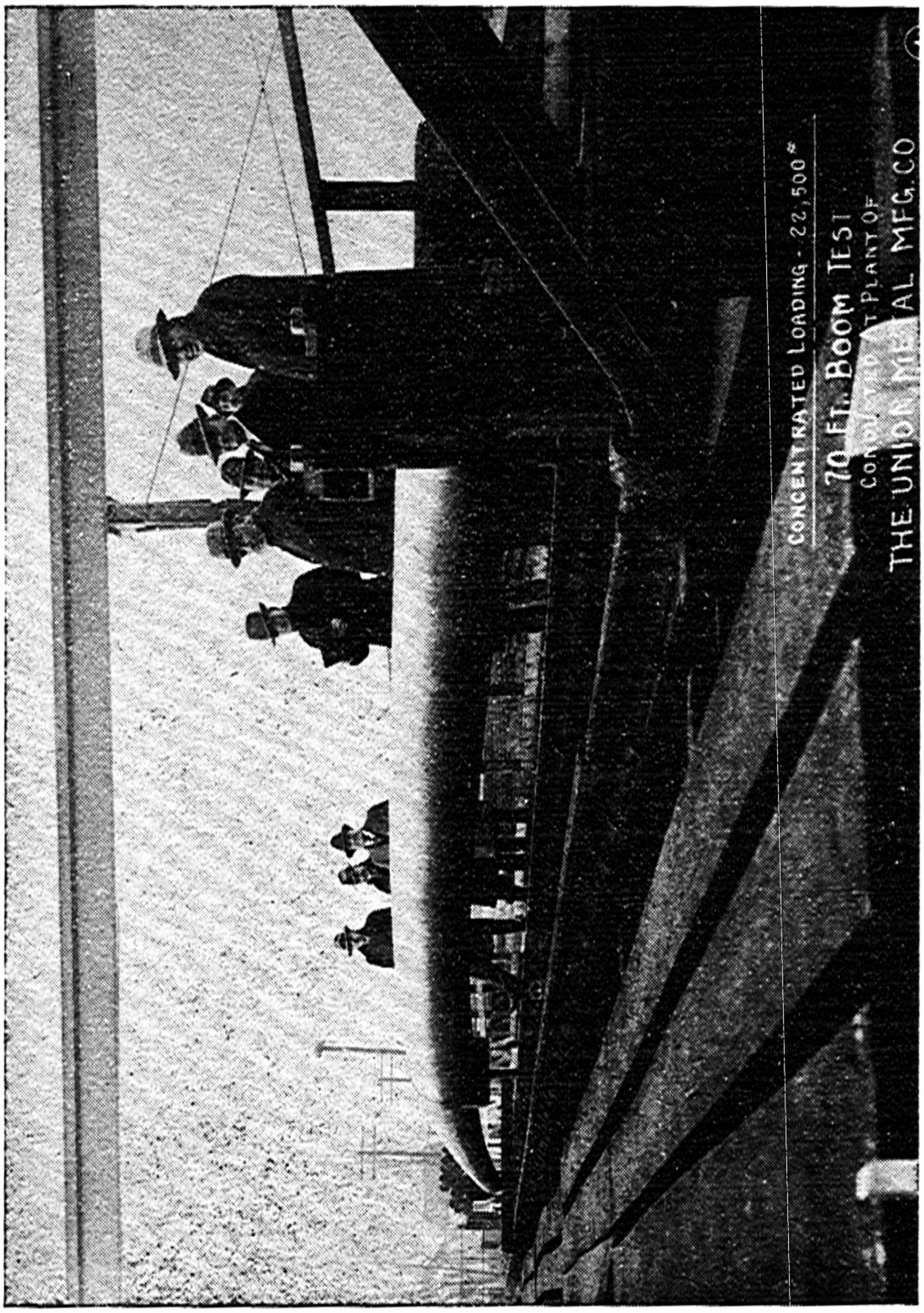
Factor of Safety according to Elastic Stability Method of Calculation

	Pipe Boom	Monotube Boom	Percentage of Extra Factor of Safety in Monotube Boom
Based on Yield Strength	2.08	2.93	41%

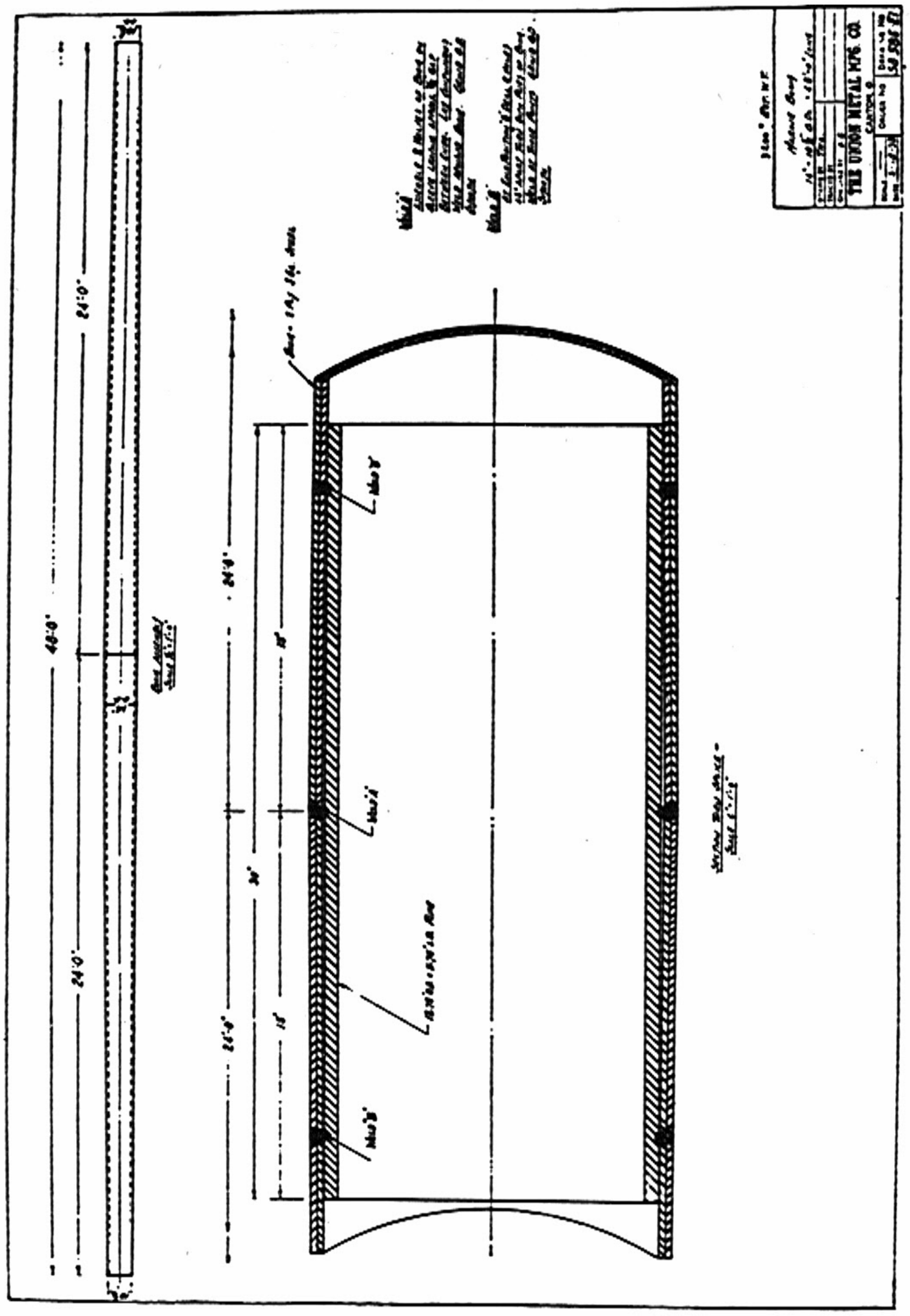
Weights of Booms

	Pipe Boom	Monotube Boom	Percentage of Extra Weight in Pipe Boom
	1950#	1628#	20%

TEST SHEET, EXHIBIT B IN THE AFFIDAVIT,
PLAINTIFFS' EXHIBIT 16 IN THE COURT PROCEEDINGS



BENDING TEST AT CANTON ATTENDED BY FLEMING (TR. 67) AND SUNDSTRUM (TR. 77)
Plaintiffs' Exhibit 14, Transcript 38.



MARINE BOOM DRAWING NO. SB-585-E1
Plaintiffs' Exhibit 7, Transcript p. 24.

United States Court of Appeals
for the District of Columbia
FILED DEC 7 1945
Joseph W. Stewart
CLERK

BRIEF FOR APPELLEE

United States Court of Appeals
DISTRICT OF COLUMBIA

APPEAL NO. 9115

UNION METAL MANUFACTURING COMPANY, ASSIGNEE, AND EDMUND W. RIEMENSCHNEIDER, AND HARRY O. RASTETTER, ASSIGNORS, APPELLANTS

v.

CASPER W. OOMS, COMMISSIONER OF PATENTS, APPELLEE

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

W. W. COCHRAN,
Solicitor, United States Patent Office,
Attorney for Appellee.

H. S. MACKEY,
Of Counsel.

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675155—45

United States Court of Appeals

DISTRICT OF COLUMBIA

APPEAL NO. 9115

UNION METAL MANUFACTURING COMPANY, EDMUND W. RIEMENSCHNEIDER, HARRY O. RASTETTER, ET AL.,
APPELLANTS

v.

CASPER W. OOMS, COMMISSIONER OF PATENTS,
APPELLEE

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

BRIEF FOR THE COMMISSIONER OF PATENTS

INTRODUCTION

This is an appeal from the judgment of the District Court of the United States for the District of Columbia (16) [1] dismissing the complaint (2) brought by the appellants under the provisions of Section 4915 R. S. (U. S. C. title 35, sec. 63) in which it was sought to have the Court adjudge that the appellant, Union Metal Manufacturing Company, is entitled to have issued to it a patent on application Serial No. 513,730, filed December 10, 1943, of its assignors Edmund W. Riemenschneider, *et al.,* containing Claims 1 and 2 of said application.

---

[1] The numbers in parentheses refer to pages of the joint appendix.

THE APPLICATION

The application (104) discloses an antenna tower made up of one or more members under compression joined together by suitable connections and properly guyed. The compression member, one or more of which are used in the antenna tower, consists of two elongated frustro-conical tubes in substantially straight axial alignment having their large ends joined in abutment. There is thus provided as a subcombination a compression member circular in cross-section and smooth in outline, which tapers toward each end and is enlarged in the center. Suitable fittings are provided at each end of the member for the transmission of compressive forces. As an alternative, a straight central cylindrical section may be introduced between the two tapered sections providing a member tapered at each end but having a short central portion of uniform diameter.

THE GATES PATENT

The patent to Gates, No. 535,537 (plaintiff's Exhibit 4, defendant's Exhibit 1) discloses a derrick having a boom member C tapered in both directions from its mid-length and having suitable fittings at each end for the transmission of forces. This boom member is fabricated from T-rail sections held in proper spaced relation by segmental spacing blocks D and retaining rings E.

THE KRAFT PATENT

The patent to Kraft, No. 1,691,818 (plaintiff's Exhibit 4, defendant's Exhibit 1) discloses a keel column for semirigid airships made up of a number of structural elements, various ones of which act as beams and others of which act as compression members. As most clearly illustrated in Figures 1 to 4, the compression members are fabricated from four arcuate sections riveted together through the medium of flanges 12 to provide a structural member which is circular in cross-section, tapered at both ends, and largest in diameter at its mid-section.

THE RIEMENSCHNEIDER PATENT

The patent to Riemenschneider, No. 1,821,850 (plaintiff's Exhibit 4, defendant's Exhibit 1) discloses a tapered tubular pole which is formed by rolling a trapezoidal-shaped plate of metal and welding it along its length. The article provided by this process is smooth in exterior and decreases in diameter from its base to its top.

THE PFAFF PATENT

The patent to Pfaff, No. 1,877,583 (plaintiff's Exhibit 4, defendant's Exhibit 1) discloses a metal tubular pole similar in its completed form to that of the Riemenschneider patent. This pole is made by a somewhat different process than that of the Riemenschneider patent, but the difference in method of processing these articles is of no importance in the present proceeding.

THE NICKLES PATENT

The patent to Nickles, No. 1,941,952 (plaintiff's Exhibit 4, defendant's Exhibit 1) discloses a boom which may be made in two or three sections. Where a shorter boom is desired, sections A^1 and A^2 are connected together forming a boom which in plan view tapers towards each end and is largest at its midpoint. Where a longer boom is desired, a section such as A^3 is inserted between sections A^1 and A^2 and in that case the boom in plan view is tapered at each end but has a central section of uniform width.

THE DU VOU PATENT

The patent to De Vou, No. 2,008,785 (plaintiff's Exhibit 4, defendant's Exhibit 1) discloses a derrick, the mast section of which consists of a tubular member decreasing in diameter towards both ends and having the largest diameter at its midsection.

THE WALLACE PATENT

The patent to Wallace, No. 2,173,525 (plaintiff's Exhibit 4, defendant's Exhibit 1) discloses an automobile frame made up of tubular members, the side members of which are made in three tubular sections fastened together. The end sections are tapered towards their ends and are connected together through the medium of a section uniform in cross-section throughout its length. The structural member forming the side section, therefore, is straight at its central portion and tapered at each end.

THE CLAIMS

The appeal claims appear on pages 6 and 7 of the joint appendix.

SUMMARY OF ARGUMENT

1. Claim 1 is unpatentable over the De Vou patent.

2. The use of smooth structural members in place of open framework members as shown in the Gates patent is a mere matter of engineering choice.

3. The elimination of stiffening flanges as disclosed in the Kraft compression member is a matter of choice and does not constitute invention.

4. The use of the central cylindrical section in a tapered compression member is immaterial and old in the art.

5. Utility and commercial success do not establish that invention is present in the absence of a showing of patentable advance in the art.

6. The Findings of Fact and Conclusions of Law rendered herein by the Court below are complete and determinative of the issues.

ARGUMENT

Claim 1 recites as a subcombination a compression member consisting of two elongated frusto-conical tubes joined together at their large ends. The De Vou patent shows such a structural member. The mast 1 of De Vou's derrick is clearly shown to be enlarged at its central portion and to be tapered towards each end. True, as shown this member is not in compression except for such stresses as might be placed thereof by reason of its own weight. It is submitted, however, that no invention is involved in either placing compressive forces on such a member or in using it under compression. Appellant urges in its brief that the De Vou mast member is square in cross-

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While appellant in its brief states that the Board of Appeals express some doubt concerning the applicability of the De Vou patent, it is to be noted that nevertheless the Board of Appeals stated, "We are therefore of the opinion that De Vou anticipates Claim 1" (154).

It is also submitted that the claims in issue define nothing of an inventive nature over the Gates patent. Gates discloses a boom which is tapered towards each end and enlarged in the center. Admittedly the Gates boom is an open-work member made up of T-rails joined together and therefore may not be said to be strictly a member having equal strength in all lateral directions as recited in the claims. Gates, however, clearly discloses the idea of a boom uniformly tapered towards each end, and it is not believed to involve invention to substitute other structural members, such as the smooth uniformly tapered tubes as disclosed in Riemenschneider or Pfaff, thus producing a smooth tapered boom of equal strength in all lateral directions.

Additionally, it is submitted that the claims define nothing of invention over the patent to Kraft. Kraft at Figure 1 discloses a compression member, tubular in cross-section, tapered towards each end. True Kraft finds it necessary to provide his member with four longitudinal flanges as fastening means for his arcuate sections in forming his device. It is submitted, however, that these flanges might be eliminated without the exercise of inventive ingenuity and the sections joined together by some other well-known means such as welding, thus producing a device identical in all respects with that of appellant.

Claim 2 involved herein differs only from Claim 1 in reciting that the structural member is provided with a straight cylindrical center section. No invention, however, is deemed to be present in such an arrangement. Both Nickles and Wallace disclose it to be old to provide such central straight members in an otherwise tapered structural member if it is so desired.

COMMERCIAL SUCCESS AND UTILITY

In large measure appellent seems to rely on commercial success and utility as establishing that its device is inventive and patentable.

Not everything useful and novel, however, is patentable and neither usefulness nor commercial success or both of them together prove invention. *Ternstedt Mfg. Co. et al.* v. *Motor Products Corp.,* 119 F. (2d) 834, C. C. A. 6; *Morrison* v. *Coe,* 74 App. D. C. 335, 122 F. (2d) 793.

Appellant has, it is true, conducted experiments and obtained acceptance of its device as a ship's boom. As stated, however, in the case of *Naamlooze Venootschafs* v. *Coe* (76 App. D. C. 313; 132 F. (2d) 573): "It does not follow that every new and useful result accomplished by experiment is patentable."

It is not to be denied, of course, that the fact of commercial success has sometimes been used in a doubtful case as a factor in tipping the scales towards patentability. Caution is necessary, however, in such application as commercial success may and often is due to factors which have no relation to invention.

In this respect Judge Galston's observations in an address delivered at the Association of the Bar of the City of New York on May 14, 1945, and reported in Vol. 27 of the Journal of the Patent Office Society at page 513 is deemed to be particularly pertinent. In speaking of the difficulty in providing an exact definition of invention, Judge Galston said:

> Courts in their perplexity hit on the expediency of commercial success in determining the issue, and have said that in a doubtful case commercial success would predicate invention. In only the rarest of instances could this be true. It could be true only in a set of circum-

> stances such as would eliminate any other explanation of the commercial success obtained; for commercial success might result from a multiplicity of causes. Good management might be one; extensive advertising another; an unusual market condition a third, and so on.

Similarly, this Court has observed in the case of *Minnesota Mining & Mfg. Company* v. *Coe* (69 App. D. C. 217; 99 F. (2d) 986):

> There is nothing in fact to indicate any more than a good article was put on the market and accepted by a willing industry. This result is one which has frequently followed the use of skill in manufacturing coupled with advertising and good salesmanship. It does not prove invention. "Commercial success, however, cannot supply inventive genius to a device that has none. Ability to sell is not inventive genius." *Tropic-Aire, Inc.* v. *Sears, Roebuck and Co.*, 8th Cir., 44 F. (2d) 580, 593.

In the instant case it is believed that the testimony indicates that commercial success is attributable to other factors than inventive genius. The appellant company has been making tapered tubes for some length of time and is well equipped to do so (23). Being so well equipped and having some eminence in that field, it is but natural that appellant should endeavor to find all possible uses for such tubes and Riemenschneider candidly admits that such is his work (23).

In the endeavor to find all possible uses for such members it appears that some eight or ten years ago the appellant became interested in the use of tapered tubular poles as masts for ships. It was found, however, that the requirements for a mast were bigger and larger than appellant's equipment could make. At the same time it was noted, however, that these ships were equipped with metal booms and it was thought that the making of booms might be an outlet for appellant's products that would give appellant more business. To that end the requirements for a boom were studied (18). It would seem that appellant in looking for new fields in which its tapered poles might be used and on deciding that booms might be such a field merely did the obvious and made its tapered poles boom-shaped by fastening two together at their larger ends. Doubtless engineering calculations were necessary in the design of such members, but this is a mere exercise of engineering skill not forming any part of the alleged invention and certainly is not a patentable advance in the art.

The first work in designing a boom seems to have resulted in the drawing of plaintiff's Exhibit 7 dated March 18, 1938, but nothing further was done in this connection for over a year (20). Instead, the boom was dropped in favor of work on antenna towers using like members and after the installation of the first tower in August 1940 appellant recurred to the idea of the use of its device as a ship's boom for the stated reason that the ship-building program was increasing day by day (21).

It is believed, therefore, that in the instant case commercial success is attributable merely to good business judgment rather than inventive genius. Appellant through good management discovered uses for its device and by reason of war conditions that necessitated an increased ship-building program and hence required use of a large number of ship's booms was able, through these unusual market conditions, to obtain considerable commercial success.

It is submitted, therefore, that although appellant's device has found considerable utility and commercial success as a ship's boom, such utility and success do not establish that the device is patentable but rather it is believed were due to conditions having no bearing on invention.

THE FINDINGS OF FACT AND CONCLUSIONS OF LAW

The appellant has alleged as error the fact that the District Court did not make any opinion or render any finding of fact on the affidavits introduced in the application involved herein or the testimony introduced by appellant at the trial. Just what finding appellant deems is necessary is not clear from its argument. Certainly reports of testimony are improper as findings of fact. *Polaroid Corporation* v. *Markham,* Appeal No. 8854, decided September 24, 1945, 67 U. S. P. Q. 1. It is supposed that appellant urges that there should have been findings of fact as to utility and commercial success, but there never has been any disagreement as to these questions. In the case of *Minnesota Mining & Mfg. Company* v. *Coe* (73 App. D. C. 146; 118 F. (2d) 593), a similar contention was made but the Court stated, "It is enough that the findings, taken together, give us a clear understanding of the basis of the decision." In the instant case it has been found as a fact that neither of the claims in suit recites anything amounting to invention over the prior art (15). Of course the Court below, as did the Patent Office, considered appellant's alleged utility and commercial success but found it not to establish invention.

CONCLUSION

It is submitted that all the appeal claims were properly rejected and that the lower Court properly dismissed the complaint.

Respectfully submitted.

W. W. COCHRAN,
Solicitor, United States Patent Office,
Attorney for Appellee.

H. S. MACKEY,
Of Counsel.

U. S. GOVERNMENT PRINTING OFFICE: 1948

JOINT APPENDIX

IN THE

United States Court of Appeals

District of Columbia.

No. 9115

THE UNION METAL MANUFACTURING COMPANY,
ET AL., *Appellants*,

v.

CASPER W. OOMS, as Commissioner of Patents, *Appellee*.

Appeal from the District Court of the United States for the District of Columbia.

United States Court of Appeals
for the District of Columbia

FILED NOV 19 1945

Joseph W. Stewart
CLERK

Press of Byron S. Adams, Washington, D. C.

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United States Court of Appeals

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v.

CASPER W. OOMS, as Commissioner of Patents, *Appellee*.

Appeal from the District Court of the United States for the District of Columbia.

JOINT APPENDIX.

I.

PLEADINGS AND OTHER PAPERS.

1 Filed Nov. 8, 1944

In the District Court of the United States
For the District of Columbia

Civil Action, File No. 26649

The Union Metal Manufacturing Company, 1432 Maple Avenue, Northeast, Canton, Ohio; Assignee; and

Edmund W. Riemenschneider,
2219 Woodland Avenue, Northwest, Canton, Ohio; and

Harry O. Rastetter, 1004 Auburn Place, Northwest, Canton, Ohio; Assignors, *Plaintiffs,*

v.

Conway P. Coe, as Commissioner of Patents, *Defendant.*

Complaint

To Obtain Letters Patent Under 35 USC 63

I

(a) Plaintiff, The Union Metal Manufacturing Company, is a corporation duly organized and existing under and by virtue of the laws of the State of Ohio, is located and has its principal office and place of business at 1432 Maple Avenue, Northeast, in the City of Canton, Stark County, Ohio: in the Eastern Division of the Northern District of Ohio:

(b) Plaintiffs, Edmund W. Riemenschneider and Harry O. Rastetter, are citizens and inhabitants of the Eastern Division of the Northern District of Ohio, and are residents respectively of No. 2219 Woodland Avenue, Northwest, and 1004 Auburn Place Northwest in the City of Canton, in the State of Ohio: and

(c) Defendant, Conway P. Coe, is Commissioner of Patents of the United States, is a citizen and inhabitant of the State of Maryland, and has an official residence in the United States Patent Office in the Commerce Building, in the City of Washington, in the District of Columbia.

2

II

This is a civil Action brought under Section 4915 of the Revised Statutes, now Section 63, Title 35, of the United States Code, to obtain Letters Patent upon application therefor, filed in the United States Patent Office, which was refused by the Examiner and by the Board of Appeals; and no appeal has been taken to the United States Court of Customs and Patent appeals.

III

On and prior to August 4, 1941, Edmund W. Riemenschneider and Harry O. Rastetter, then citizens of the United States, residing at Canton in the County of Stark and State of Ohio, were the original, first, joint and true inventors of a certain new and useful Compression Member for Radio Antenna Tower and the Like, fully described in the specifications of the hereafter mentioned parent application Serial No. 405378 and divisional application Serial No. 513,730; which Compression Member was not known or used by others in this country before their invention or discovery thereof, or more than one year prior to their said parent application for Letters Patents, was not in public use or on sale in this country for more than one year prior to the filing of their said parent application, was not patented or caused to be patented by them or their legal representatives or assignors in any foreign country upon an application filed more than twelve months prior to the filing of their said parent application for Letters Patent in the United States, and was not abandoned.

IV

(a) On August 4, 1941, Riemenschneider and Rastetter duly filed their parent application for Letters Patent, with claims 14 and 15 for said Compression Member, in accordance with the then existing acts of Congress, which parent application was given Serial No. 405,378.

3 (b) Said parent application was examined by the Examiner directed to do so by the Commissioner of Patents, and original claims 14 and 15, amended to be claims 16 and 17, for said Compression Member, were finally rejected on October 14, 1942, upon reference to the U. S. Wallace patent No. 2,173,525;

(c) On November 15, 1942 an Interference No. 80,509 was declared between certain other claims which had been allowed in said parent application for a Radio Antenna Tower, which contains a plurality of said Compression Members as essential, if not dominating elements in the Interference claims.

V

(a) On June 5, 1943, Riemenschneider and Rastetter filed a Motion to Add Counts, to include said claims 16 and 17 in said Interference; and On June 8, 1943 they filed a Supplemental Motion; which motions were denied on October 25, 1943, principally upon reference to said Wallace patent No. 2,173,525.

(b) On November 6, 1943, they filed a Request for Reconsideration of said Motions, which request was denied by the Examiner on November 15, 1943.

(c) As plaintiffs are informed and believed, the denial of said Motions was erroneous, upon the showing of the Affidavits, the Exhibits, and the proposed Amendment submitted therewith; of which profert is hereby made of certified copies, as part of this Complaint.

VI

(a) On December 10, 1943, Riemenschneider and Rastetter filed their divisional application for Letters Patent for said Compression Member, in accordance with the then existing acts of Congress, which divisional application was given Serial No. 513,730, and contains claims 1 and 2 corresponding to said former claims 16 and 17, as amended.

4 (b) In the absence of a prompt action by the Examiner upon said divisional application, as required by sundry standing orders of the Commissioner of Patents, on February 24, 1944, Riemenschneider and Rastetter filed a Petition to the Commissioner to Make the Examination thereof Special and to Delay Proofs in said Interference; which Petition was dismissed by the Commissioner on March 2, 1941 upon a report of the Examiner that an action would be made within two weeks, and because delay of proofs was to be determined in the first instance by the Examiner of Interferences.

(c) On March 7, 1944, Riemenschneider and Rastetter filed a memorandum of Authorities and an Affidavit, with Exhibits A, B, C, D, E, and F, showing the presence of the invention by the existing need for a Compression Member of lighter weight and greater strength than the Standard Pipe Boom then available, and by the adoption and use of the Compression Member in Cargo Booms on the ships of the British Admiralty, of the United States Maritime Commission and of the United States Navy.

(d) Thereafter, said divisional application was examined by the Examiner directed to so by the Commissioner of Patents, and on March 24, 1944, the pending claims 1 and 2 were finally rejected upon the ultimate ground that they had been held to be unpatentable in Interference No. 80,509, and because similar claims had been finally rejected in the parent case; with incidental reference to said Wallace Patent No. 2,173,525, and prior U. S. patents to Gates, No.

535,537, Kraft, No. 1,691,818, Riemenschneider No. 1,821,850, Pfaff, No. 1,877,583, Nickles, No. 1,941,952, Jenner, No. 1,952,011, De Vou, No. 2,008,785 and Orr et al No. 2,168,269.

VII

(a) Thereupon, on March 29, 1944, Riemenschneider and Rastetter, duly appealed to the Board of Appeals, which appeal was heard in due course, and on May 20, 1944, the Board of Appeals rendered a judgment affirming the decision of the Examiner upon the same references, and with only an incidental reference to the showing made before the Examiner; which judgment is believed to be erroneous in view of the showing of facts made before the Examiner and the Board, all as appears more fully in the File Wrapper, Contents and Drawings, in the proceedings in the Patent Office upon said application and the appeals thereupon, certified copies of which are hereby proffered as part of this complaint.

VII

The Commissioner of Patents has, ever since said judgment of the Board of Appeals, refused and still refuses to grant letters patent upon the aforesaid divisional application, Serial No, 513,730, of said Riemenschneider and Rastetter, and particularly for the claims which were finally rejected by the Examiner whose decision was affirmed by the Board of Appeals, as follows—

1. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantially straight axial alignment throughout their length with their large ends joined in abutment, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

IX

(a) Plaintiffs plead further that prior to 1941, Standard Pipe Booms illustrated in Lingo patent No. 2,162,675, were being used by the British Admiralty and the United States Maritime Commission and U. S. Navy; that prior to November 1941, at the request of the American bureau of Shipping, tests were made at Baltimore, Maryland, comparing said Standard Pipe Boom and plaintiffs Monotube Boom embodying applicant's Compression Member, as shown in Exhibit B, and that those tests show that a Monotube Boom twenty (20) percent less in weight, has strength of forty-one (41) percent more, than the Standard Pipe Boom;

6 (b) That subsequent calculations made by the plaintiffs, comparing their Monotube Boom and the Keel Column of the Kraft patent No. 1,691,818, show the Keel Column of the same strength will weigh Thirty Five percent (35%) more than the Monotube Boom, and that a Monotube Boom of the same weight, will be Two and Twenty-two Hundredths (2.22) times stronger than the Keel Column;

(c) That as a result of the Baltimore tests, early in November 1941, the British Admiralty, and early in 1942, the United States Maritime Commission and Navy, adopted and began to use said Monotube Booms with end fittings, as shown in Exhibit C. and D. and known as Union Metal Cargo Booms; a considerable number being used on each ship, as shown in Exhibit E and F;

(d) That since the adoption and use of such Cargo Booms, and up to October 1, 1943, the British Admiralty and the United States Maritime Commission and Navy purchased from plaintiff, the Union Metal Manufacturing Company, altogether some Twenty-four Thousand, Seven Hundred and Nine (24,709) Cargo Booms, made by said plaintiff, embodying the structure defined in one or the other of said pending claims 1 and 2; and that up to the present time, some Forty Thousand (40,000) such Cargo Booms have been made and sold as aforesaid;

(e) That as a result of said extensive use, the manufacture of said Cargo Booms has substantially established a new industry, of such a size that by October 1, 1943 it has absorbed about Eighty-five per cent (85%) of the capacity of the Union Metal Manufacturing Company, and required it to increase the number of its employees from about Three Hundred and Fifty (350) to some Twelve Hundred (1200) in a period of about two years.

(f) That as a further result of satisfying the Maritime need for a light and stronger Cargo Boom for ships 7 sailing the seven seas, on March 13, 1943, The Union Metal Manufacturing Company was awarded the Army and Navy ‘‘E’ by the United States Army and Navy and on July 16, 1943 it was awarded the Maritime ‘‘M’’ by the United States Maritime Commission.

(g) That the foregoing facts were substantially ignored, and in any event were not properly evaluated by the Patent Office Tribunals in rejecting applicant’s claims as aforesaid, as plaintiffs are informed and believe.

X

(a) Concurrently with the execution of said parent application, Serial No. 405,378, on July 25, 1941, said Riemenschneider and Rastetter sold, assigned and transferred unto said, The Union Metal Manufacturing Company, the full, sole, and exclusive right to said Compression Member invention as described in said application; which assignment was duly recorded in the United States Patent Office on August 4, 1941, in Liber Q. 188, at page 74 Transfers of Patents; and;

(b) Concurrently with the execution of said divisional application, Serial No. 513,730, on November 22, 1943, said Riemenschneider and Rastetter sold, assigned and transferred unto said The Union Metal Manufacturing Company, the full, sole, and exclusive right to said Compression Member invention, as described in said application, with a request to the Commissioner of Patents to issue Letters Patent therefor to said The Union Metal Manufacturing Company, as assignee, for the sole use and behoof of said company and its legal representatives; which assignment was duly recorded in the United States Patent Office on December 10, 1943, in Liber W. 197 page 531, of Transfers of Patents.

(c) Profert is hereby made of said assignments or certified copies thereof; under which said The Union Metal Manufacturing Company continues to be and now is the sole exclusive owner of said Compression Member invention, and is entitled to have letters patent granted to it, as the assignee of said Riemenschneider and Rastetter.

8

XI

Plaintiffs submit, upon information and belief, that the Examiner and the Board of Appeals acted erroneously and contrary to the facts and the law, in rejecting the aforesaid claims in said applications and on the references and for the reasons of record therein, and that the Commissioner of Patents has acted erroneously in refusing to grant Letters of patent to plaintiff, The Union Metal Manufacturing Company, for the claims contained in said divisional application as aforesaid, whereby said plaintiff has suffered, and if not relieved by the Honorable Court, will continue to suffer great and irreparable damage for which it has no plain, speedy or adequate remedy, or any remedy whatever, at law.

XIII

Wherefore, the plaintiffs bring this Civil Action, in accordance with the provision of the Statute (Sec. 4915 R.S.; 35 USC 63) in such cases made and provided, and prays:—

(1) That this Honorable Court may declare and adjudge that plaintiff, The Union Metal Manufacturing Company, is entitled according to law, to receive a patent for said Compression Member invention, as described in said divisional application of plaintiffs Riemenschneider and Rastetter, Serial No. 513,730, filed December 10, 1943, and particularly as pointed out in said claims 1 and 2 therein and may authorize and direct the Commissioner of Patents to issue said patent to the plaintiff, The Union Metal Manufacturing Company upon its filing in the Patent Office of a copy of such adjudication, and otherwise complying with the requirements of law.

(2) That such other order and further relief may be granted and decreed to said plaintiffs as the equity of the cause may require and to the Court seem meet.

(3) That all of the costs and expenses of this proceeding shall be taxed against and paid by said plaintiffs, whether the final decision is in their favor or not.

9 (4) That subpoena directed to the Honorable Conway P. Coe, Commissioner of Patents of the United States of America, be issued out of and under the seal of this Honorable Court, requiring him to appear and answer this complaint and abide by any further order of this Court.

THE UNION METAL MANUFACTURING COMPANY,

By C. A. ORR
President
EDMUND W. RIEMENSCHNEIDER
HARRY O. RASTETTER

HARRY FREASE
JOSEPH FREASE
E. R. HAMILTON
Harter Bank Building
Canton, Ohio

EDWARD RANDOLPH WALTON, JR.
Munsey Building
Washington, D. C.
Attorneys for Plaintiffs.

* * * * * * * * * *

13 Filed Dec. 6, 1944

Answer to Complaint

To the Honorable the Justices of the District Court of the United States for the District of Columbia.

1. 2. The defendant admits the allegations of paragraphs 1 and 2 of the complaint.

3. He admits that the applications referred to in paragraph 3 of the complaint were filed as alleged and that they contained allegations corresponding to those set forth in the said paragraph. He denies that the said applications or allegations entitle the plaintiffs to the allowance of a patent containing any of the claims set forth in the complaint.

4. He admits the allegation of paragraph 4 of the complaint.

5. He admits the allegations of parts (a) and (b)
14 of paragraph 5 of the complaint. He admits that the
plaintiffs' beliefs are as set forth in part (c) of paragraph 5 of the complaint, but he denies that the actions of the Patent Office therein referred to were erroneous.

6. He admits that the alleged divisional application was filed as asserted in part (a) of paragraph 6 of the complaint. He denies that claims 1 and 2 of the divisional application correspond to former claims 16 and 17 of the

parent application. He admits the filing and disposition of the petition to make special as referred to in part (b) of paragraph 6 of the complaint. He admits the filing of the authorities and affidavits referred to in part (c) of paragraph 6 of the complaint. He denies that such authorities or affidavits showed the presence of any such invention as would support the allowance of the claims set forth in the complaint. He admits that the divisional application was examined as set forth in part (d) of paragraph 6 of the complaint and that claims 1 and 2 were finally rejected. He denies that the ultimate ground of rejection was that the claims were similar to claims which had been rejected in the parent case. He states that the grounds of rejection are those set forth in the examiner's statement in answer to the appeal.

7. He admits that the plaintiffs appealed from the final rejection and that the Board of Appeals affirmed the decision of the examiner. He denies that the decision of the Board of Appeals was erroneous in any respect.

8. He admits the allegations of paragraph 8 of the complaint.

9. He is without sufficient information to enable
15 him to form an opinion as to the accuracy of the
allegations contained in parts (a) to (f), inclusive,
of paragraph 9 of the complaint. He denies the allegations
of part (g) of paragraph 9 of the complaint.

10. He admits the allegations of paragraph 10 of the complaint.

11. He denies that the examiner or the Board of Appeals acted erroneously or contrary to the facts or the law in rejecting the plaintiffs' application. He states that the refusal to grant a patent to the plaintiffs was proper for the reasons stated in the decision of the Board of Appeals and in the statement of the primary examiner in answer to the

appeal, copies of which wlil be furnished at the trial and in view of the following patents:

Gates	535,537	March 12, 1895
Kraft	1,691,818	Nov. 13, 1928
Riemenschneider	1,821,850	Sept. 1, 1931
Pfaff	1,877,583	Sept. 13, 1934
Jenner	1,952,011	Mar. 20, 1934
Nickles	1,941,952	Jan. 2, 1934
De Vou	2,008,785	July 23, 1935
Orr et al	2,168,269	August 1, 1939
Wallace	2,173,525	Sept. 19, 1939

Profert of copies of the aforementioned patents is hereby made.

W. W. COCHRAN,
Solicitor, U. S. Patent Office,
Attorney for Defendant.

* * * * * * * * * *

151 Filed June 4, 1945

Findings of Fact

1. This is an action under Section 4915 R. S. (U.S.C., title 35, sec. 63) in which plaintiffs seek a judgment which would authorize defendant to issue a patent containing claims 1 and 2 of application Serial No. 513,730, which was filed in the Patent Office on December 10, 1943 and which is a division of application Serial No. 405,378, filed in the Patent Office on August 4, 1941.

2. The application relates to an antenna tower and the like made up of one or more members which, in use, are under compression. The compression member consists of two elongated frusto-conical tubes having their large ends joined in abutment and their small ends provided with the proper fittings for receiving and transmitting compression forces. As an alternative, the compression member may include a central cylindrical section. The claims in suit relate to a single compression member.

3. Claims 1 and 2 of the application read as follows:

152 1. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantially straight axial alignment throughout their length with their large ends joined in abutment, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

4. The patent to Gates, No. 535,537 of March 12, 1895, discloses a derrick boom made up of a framework of T rails in which the boom tapers in both directions from its mid-section.

5. The patent to Kraft, No. 1,691,818 of November 13, 1928, discloses a keel column made up of four arcuate sections joined together by flanges forming a column tapering from its central section toward each end.

6. The patent to Riemenschneider, No. 1,821,850 of September 1, 1931, which is owned by plaintiffs, discloses a tapered tubular pole consisting of a hollow tube, circular in cross-section, tapered toward one end.

7. The patent to Pfaff, No. 1,877,583 of September 13, 1932 discloses a similar pole of hollow tapered construction.

8. The patent to Nickles, No. 1,941,952 of January 2, 1934, discloses a boom construction made up of two sections which in plan view taper from the mid-section towards the ends. In the alternative a central section of uniform width may be inserted between the two tapered end sections.

153 9. The De Vou patent, No. 2,008,785 of July 23, 1935, discloses a derrick wherein the mast portion consists of a hollow tube tapered toward both ends from its mid-section.

10. The patent to Wallace, No. 2,173,525 of September 19, 1939, discloses a tubular beam member having tapered end sections and a central portion of uniform cross-section.

11. The mast member disclosed in the De Vou patent constitutes a structural member of the same form as recited in claim 1 in suit.

12. It was not invention to make the boom of the Gates patent of the smooth tapered tubes disclosed in the Riemenschneider and Pfaff patents.

13. In view of the Riemenschneider and Pfaff patents it was not invention to eliminate the flanges on the keel column of the Kraft patent thereby providing a structural member having a smooth exterior.

14. It was not invention to provide the De Vou member or the Kraft member with a central portion of uniform cross-section, in view of the Nickles or Wallace patents.

15. Neither of the claims in suit recites anything amounting to invention over the prior art.

16. Neither of the claims in suit is patentable.

Conclusions of Law.

1. Plaintiffs are not entitled to receive a patent containing either of the claims in suit.

154 2. The complaint should be dismissed with costs against the plaintiffs.

DANIEL W. O'DONOGHUE,
Justice.

June 4, 1945.

* * * * * * * * * *

155 Filed June 4, 1945

Judgment.

This action came on to be heard at this term and thereupon upon consideration thereof, it is this 4th day of June, 1945,

Adjudged that the complaint be and it is hereby dismissed, with costs against the plaintiff.

DANIEL W. O'DONOGHUE,
Justice.

Approved as to Form:
EDWARD R. WALTON, JR.,
Attorney for Plaintiffs.

* * * * * * * * * *

157 Filed Aug. 27, 1945

Order.

Upon consideration of the Motion filed by Plaintiffs herein, it is hereby ordered this 27th day of August, 1945, that the Honorable Casper W. Ooms, Commissioner of Patents, be substituted as Defendant for the Honorable Conway P. Coe, formerly Commissioner of Patents.

H. A. SCHWEINHOUT,
Justice.

* * * * * * * * * *

158 Filed Aug. 27, 1945

Notice of Appeal.

Notice is hereby given that The Union Metal Manufacturing Company, Assignee, and Edmund W. Riemenschneider and Harry O. Rastetter, Assignors, the plaintiffs above named, hereby appeal to the United States Court of Appeals for the District of Columbia, from the Judgment entered in this action on June 4, 1945.

HARRY FREASE,
JOSEPH FREASE,
E. R. HAMILTON,
Harter Bank Building,
Canton 2, Ohio,

EDWARD RANDOLPH WALTON, JR.,
Munsey Building,
Washington, D. C.,
Attorneys for Plaintiffs—
Appellants.

Washington, D. C.
August 27th, 1945.

* * * * * * * * * *

II.

EXCERPTS FROM TESTIMONY AND PROCEEDINGS.

43 **Edmund W. Riemenschneider**, called as a witness on behalf of the Plaintiffs, having been duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Hamilton:

Q. Mr. Riemenschneider, will you state your name, age, and residence? A. Edmund W. Riemenschneider, 58 years old, and I live at Canton, Ohio.

Q. What is your occupation? A. Chief engineer of the Union Metal Manufacturing Company.

* * * * * * * * * *

Q. How long have you been chief engineer of that company? A. About six years.

Q. What was your position prior to that time? A. I was development and research engineer of the Union Metal Manufacturing Company.

Q. Just briefly, give us an idea of what your education and experience was prior to the time you became develop-

ment engineer of this company. A. In 1909 I grad-
44 uated from Case School of Applied Science. I re-
ceived a degree of Bachelor of Science in mechanical engineering. I then worked with the American Steel & Wire Company for about six years, three years with the Parish & Bingham Company, three years with the Cleveland Metal Products Company, one year with the Vital Manufacturing Company, and in 1926 I came with the Union Metal Manufacturing Company of Canton.

* * * * * * * * * *

Q. Generally, what is the nature of your work at Union Metal? A. It is improving methods of manufacturing our products, improving the products themselves, and developing new products for the company to manufacture.

Q. What is the nature of these products to which you refer? A. In the main, they are tapered tubes which are used for making street lighting poles, sign poles, distribution poles, tapered tubular piling, masts, radio towers, and booms.

* * * * * * * * * *

45 Q. Can you relate just briefly how the invention
set forth in these claims came to be first conceived by you and your company and the other inventor, Mr. Rastetter? A. Well, about eight or ten years ago we were interested in making, or rather in using our tapered tubular poles as masts for ships. We investigated this field, figuring that it might prove to be a future market for our product. We did make several masts for ships but at that time we found most of the requirements for a mast were bigger and larger than our equipment could possibly make. But while we were investigating this, we noticed that the ships, especially sea-going ships, were equipped with metal booms. We thought there probably might be an outlet for our products and we would give the company a little more
business. So we studied the requirements of a boom,
46 in other words, what does a boom have to stand,
what would be an ideal boom?

After we found that a boom was mainly a compression member, that is, that there would be force applied at each end pressing longitudinally along the axis of this member. Therefore, we immediately started to make a study and research on what is an ideal compression member. By ideal compression member, I mean a member which will have the greatest strength for the least weight, thereby getting the most out of every pound of material you put into it.

I could explain some of the features that we had to study if I had a yardstick, and in that way I could illustrate it.

Q. I will give you one.

(The witness was handed a yardstick.)

A. Now, let us look at the action of a yardstick when you put a compression or force on the yardstick. You will find that it bows in the center. If you notice, the curvature at the center is far greater than the curvature along the length of the yardstick. In other words, we have a curvature of a certain radius and that radius gets less and less and finally near the top and bottom it is still straight. Immediately that showed us that the center of the compression
47 member, to be an ideal compression member,
that is, an ideal compressor, must be stronger and stiffer than at the approaching ends.

Then, we also noticed that this curvature gets up to a larger radius or flattens out towards the ends until that section modulus or stiffness should decrease as it goes along until at the end it would be less.

It showed us another thing. If you notice, this yardstick bends only in one direction. It does not bend in the other direction whatsoever. It proves to us that the ideal compression member again should be uniform in strength laterally and to have a uniform strength, the lateral section naturally should be a round section, which shows this should be round, it should be larger in the center than at the ends, and it should decrease gradually from the center to the ends.

In considering any one section to give us the best strength for the weight of the material, it must be circular, and naturally it should be hollow. That is, the farther you take this metal and spread it away from its center or polar axis, the greater the section modulus is and the stronger that member is in order to resist bending.

That is how we finally came to the point to figure that a
boom made or compression member made of two hollow
tapered sections, with a large section adjoining the
48 small ends at the far ends, we would thus approach
the ideal compression member.

* * * * * * * * * *

49 Q. How do you describe generally a swage pipe boom? A. A swage pipe boom is made up with a rather large diameter pipe of a certain length in the center with two or more smaller diameter pipes telescoped in the ends of the larger pipe, and then at this point of the telescoping the larger pipe is swaged down on to the outside diameter of the smaller pipe.

Q. What do you mean by the term "swage"? A. Swaging is a term used for bringing the diameter of the larger pipe down to a smaller diameter and it is generally done by either hot forging or cold pressing.

* * * * * * * * * *

50 Q. After this marine boom drawing, Exhibit 7,
was made according to your instructions and under
your supervision, what, if anything, did you do then or im-
mediately thereafter towards developing this product or
to make it commercially available? A. Well, we did not do
much with it for a little over a year. We knew it would
require a lot of figuring and extensive tests to prove the
value of this structure and at that particular time we
51 were doing a lot of war defense work.

* * * * * * * * * *

56 Q. After you got this idea of making a radio antenna tower in such a manner, what, if anything, did

57 you do about developing or manufacturing it? A. Well, we did not manufacture immediately. We had to do a lot of figuring and calculating to work out the proportions of this structure and checking it and we finally hired a special stress analysis engineer to work on this, to check our figures. It was not until, I think it was June 1, 1940, that we sold our first tower.

Q. Was it erected? A. Yes, it was erected in August of 1940 at Welch, West Virginia.

Q. How did it perform? A. Very satisfactorily, in fact it is still in operation.

Q. After that tower was erected, I believe you said in August, 1940, did you next do anything toward developing this compression member which was one unit of the tower? A. Well, we still did a lot of figuring on this tower to develop formulas.

Q. Did you do anything with respect to this ship boom that you had previously thought about, that is, immediately following the erection of the tower? A. Well, after we saw how the tower performed it encouraged us to promote our first idea of the ship boom because at that time the shipbuilding program was increasing day by day on account of the submarine menace in the Atlantic. 58

Q. What are the advantages of this double tapered tubular compression member that are peculiarly important in a ship boom? A. Well, the main thing is its engineering economy. By that I mean it is, for the same strength, it is lighter; for the same weight it is far stronger.

Q. Just why is it important to keep the weight down for a certain required strength of a ship boom? A. Not only is it a matter of saving materials and expense; the cargo booms are placed above the deck of a ship and whenever you add weight above the deck of a ship you are raising the center of gravity of the ship and you are losing out on the stability of the ship. The lower the center of gravity, the more stable a ship is. Every pound that can be saved above deck is quite advantageous.

Q. Well, now, when you realized that this member had certain advantages as a ship boom, what did you do? Did you immediately begin to make and sell ship booms? A. I think we had a rather hard time convincing the Navy architects that the Monotube boom would do what we said it would do.

* * * * * * * * * *

59 Q. Do you know about how long it was from the time you first approached the naval architects and the shipbuilders with your new boom or your Monotube boom before you began to sell them? A. Between a year and a year and a half, if I remember right, it was over a year.

Q. Wasn't there some way prior to this time that the engineers in designing columns or ship booms had of calculating what a boom would do in respect to strength? A. Well, most of the engineers used the standard column formula and which they all admit was not adequate to get exact figures, so they added a very high factor of safety in order to be sure that the boom would do the work. If they
60 had to cut down weight they would be required to make extensive tests before they would lower that factor of safety to any reasonable figure.

Q. Well, then, you said, I believe, that the engineers and the shipbuilders and the naval architects wanted actual tests made, is that right? A. That is right.

Q. Did you make any actual tests? A. Oh, yes.

Q. What did those tests generally show? A. They showed that our boom had a better strength to weight ratio than any boom used previously on any ship. In some cases, for the same weight our boom was 60 percent stronger.

Q. Now, these tests were made, were they, after you had done some figuring and worked on these formulas? A. Yes, it was after we had furnished the figures.

Q. Were the tests what you had expected, the results of the tests what you had expected from your figures? A. Yes, as far as the static load went, that is what I mean by pick-

ing up a load and holding it. But we found an unexpected result in case of shock load. By that I mean if there was a shock placed on the boom by a weight dropping and then catching it, due to the uniformity of deflection in this boom,
due to the taper, it would vibrate and ease the shock
61 on the metal in the boom.

Now, that is not the case in the standard pipe boom because that has weak sections or more highly strained sections right adjacent to the telescopic joints and when that shock occurs there it concentrates the stress at the weak points and that is where they generally fail.

* * * * * * * * * *

79 Cross Examination

By Mr. Mackey:

Q. Are you the E. W. Riemenschneider of this patent 1,821,850, is that you? A. Yes, sir.

Q. That was issued in 1931; is that right? A. That is right.

Q. And that disclosed in its claims a tapered metal
80 tube, did it not? A. That is right.

Q. Used for poles? A. Yes.

Q. Then your company has made these tapered tubes for some length of time? A. That is right.

Q. You are well equipped to make such members? A. We think we are pretty well equipped.

Q. Then I presume that you try to find all the uses possible for such tapered metal tubes, is that right? A. I did not get the last question.

Q. I presume you try to find all the uses possible for such tapered tubes? A. That is right.

Q. In your business? A. That is right, that is part of my work.

* * * * * * * * * *

86 **John Fleming**, called as a witness on behalf of the
Plaintiffs, having been duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Hamilton:

* * * * * * * * * *

Q. What is your occupation, Mr. Fleming? A. I am a supervisor in the Hull Engineering Division of Gibbs & Cox,
naval architects, of New York.

87 How long have you been so employed? A little
over eleven years.

Q. Generally, what is your experience prior to that time? A. My experience prior to that time consisted in the shipbuilding business of about 15 years in the Royal Dock Yard, at Portsmouth, England, six years of which was as an apprentice by Civil Service appointment, and nearly two years with the Bethlehem Shipbuilding Corporation in this country, making a total of about 28 years.

Q. What does your work in shipbuilding engineering involve, just briefly? A. Ships and ship parts, including masts and rungs and standing rigging.

Q. Is that the manufacture of those parts or the design? A. Mostly the design, sir.

Q. During this period of your experience in shipbuilding, did you have anything to do with the design of cargo booms for ships? A. Yes, sir.

Q. I hand you Plaintiffs' Exhibit No. 16, which has a drawing of a so-called monotube boom. Are you familiar
with that type of boom? A. Yes, sir.

88 Q. When did it first come to your attention? A.
The monotube boom first came to my attention in the latter part of 1941.

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Q. Referring to Plaintiffs' Exhibit No. 8, which is the Marine Standard Bulletin, are you familiar with that paper? A. Yes, sir.

Q. And is the boom shown on Figure 2, page 2, the swage type you spoke of? A. Yes, sir.

Q. Was that considered standard by designers? A. That shows the standard design of swage type booms used extensively for cargo handling on merchant ships.

89 Q. Those are the kind of booms that you were concerned with prior to the time that this Union Metal boom came to your attention late in 1941, is that what you say? A. Those standards were used by practically all designers in the shipbuilding business for cargo handling booms on American merchant ships. The British have a similar standard to that. I am very sure the booms are much heavier.

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Q. Under what circumstances, if you remember, just briefly, did this Union Metal Company boom come to your attention late in 1941? A. Well, at that time we were engaged in a most extensive program of torpedo net defense for merchant ships and a certain Captain Curry of the British Navy was in this country giving us the benefit of his experience with a similar device on British merchant ships, on which they used the heavy swage type booms. The Procurement Division of my company out in the fields, to get someone to manufacture such booms, had many representatives call at the office, and one of those rep-
90 resentatives was Mr. Walter Vick of the Union Metal
Manufacturing Company, who came there and presented the monotube type boom and specifications and suggested we use that as a substitute for torpedo net defense as against the swage type boom that had been used previously by the British Government.

Q. Then the presentation of the sketch by Mr. Vick was the first time you ever saw a boom of that type; is that right? A. Yes, sir.

Q. What was your first reaction to the desirability or suitability of this Union Metal boom for the purpose of the torpedo net defense that you were concerned with at that time? A. Well, the boom looked very attractive to me, particularly because the Union Metal specifications stated that it meant a saving in weight against the swage boom type without a comparable loss in capacity. But, of course, we could not accept a boom on a specification, on a sketch, without some further proof of its capability.

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91 Q. What, if anything, did you have to do with the way these tests were conducted or made? A. Well, we were not entirely satisfied that this boom would meet the requirements of torpedo net defense and particularly since it was quite revolutionary in its form as to what we had seen before, and radically—

Q. Quite what? A. Quite revolutionary and radically different from those we had used in the past.

Q. You say you required these tests or asked for them? A. Yes. Captain Curry had established certain bending tests for these booms, but I knew from experience that these booms would be subjected to a very severe compressive load when in sea action, so I established certain compressive tests and requested the Union Metal to make those tests in addition to the bending tests which we ex-
92 amined, too, and approved.

Q. Did the Union Metal Company make the bending and compression tests exactly as you required and requested that they make? A. Yes.

Q. And used the exact loads and figures that you wanted? A. Yes, sir.

Q. And what were the results of those tests? A. They were entirely satisfactory.

Q. Was the boom used then in torpedo net defense? A. It was used most extensively, used on American Liberty Ships, tank carriers and British and Canadian freighters.

Q. How did it perform? A. Highly satisfactory.

* * * * * * * * * *

93 Q. Did you witness any tests on the swage type booms that were similar to this one you saw at Union Metal on the monotube boom? A. Yes, I witnessed a test on the swage type boom but I stopped it before the full load was applied because it was very obvious the boom was going to fail.

Q. Just approximately, if you know, how did these Union Metal booms compare in weight with the swage type booms that were used on the British freighters or British ships? A. They were much larger. I would say the British booms were up to 50 percent heavier.

* * * * * * * * * *

Cross Examination

By Mr. Mackey:

Q. When you first saw this boom, that is, the drawings and specifications, you would not accept any boom that was different in design without a test, would you? A. No, sir.

Q. That is why you required the test? A. Yes, sir.

Q. Now, am I to understand on all the American ships there is no boom torpedo boom used except of this design? A. To the best of my knowledge, that is so, sir.

94 Q. On the British ships they use the swage pipe boom? A. In the British ships built in Great Britain?

Q. Yes. A. There are Union Metal booms used on British ships built in this country.

* * * * * * * * * *

98 **E. W. Sundstrom**, called as a witness on behalf of the Plaintiffs, having been duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Hamilton:

* * * * * * * * * *

Q. What branch of the armed forces are you engaged in? A. United States Naval Reserve.

Q. Where are you stationed at present? A. 39 Broadway.

Q. New York City? A. New York City.

Q. What are your duties? A. Director of Maritime Commission depots.

Q. How is it you are director of Maritime depots when you are in the Naval Reserve? A. I am assigned by the Navy Department to do this duty.

99 Q. About how long have you been director of Maritime depots? A. Since the 26th of August, 1944.

Q. What was your position before that time? A. Assistant director.

Q. And, generally, before that what was your occupation? A. Previous to that I was assigned to the British Admiralty.

Q. Well, I mean prior to that, your general occupation and experience? A. Master of merchant ships since 1917 to 1941.

Q. As a master of merchant ships, were you familiar with the use and maintenance of cargo booms, ship booms? A. I was.

Q. Did that come under your responsibility as a master of a ship? A. Everything on a ship comes under the master's responsibility.

Q. During that time, from 1917 up to recently, of recent years that you were master, what type of metal cargo booms were you familiar with? A. The swage type.

Q. Is that the type shown on page 2 of this Marine Standards Bulletin? A. Substantially the same.

Q. That is a swage type made out of what? A. Tubular pipe or pipe swage boom, as it is called.

100 Q. Are you familiar with this Union Metal monotube boom which is shown in this sketch, Plaintiffs' Exhibit No. 1? A. I am.

Q. How long have you been familiar with that boom? A. Since November, 1941.

Q. Had you ever heard of or seen a metal boom of this type prior to that time? A. I had not.

Q. Well, under what circumstances, if you remember, did that boom come to your attention first, in November of 1941? A. In November of 1941 I was assigned to the British Admiralty under Captain Curry and we were at that time contemplating fitting British merchant ships built in the United States with a torpedo net defense. As I recall, hundreds of booms were required for these ships. About that time a Union Metal representative introduced the monotube or the taper type booms to the firm of Gibbs & Cox, who were the design agents not only for the ships, but also the torpedo net defense, and that is how I came to get acquainted with this monotube boom.

Q. When you first saw this monotube boom or sketch or if, as you say, in 1941, in connection with this torpedo net
defense program, what was your reaction as to its
101 suitability as a boom, particularly for torpedo net
defense? A. I did not think much of it.

Q. Why not? A. Compared to the swage type it looked entirely too light.

Q. You are familiar with this photograph? A. I am.

Q. Showing the test at Union Metal on November 24, 1941? Were you present? A. I was.

Q. Do you appear in that photograph? A. I appear in this photograph.

Q. Generally, what types of tests were made on these booms at Union Metal at that time? A. This photograph is of a bending test. That is of the same date.

Q. That is the one where the men appear in the picture, Exhibit No. 14. That was the bending test. How about this? A. This is the compressive test of a similar type boom performed the same date.

Q. What, generally, were the results of the tests that you witnessed at the Union Metal at that time? A. Very satisfactory.

Q. Were you satisfied at that time that this boom of Union Metal was better as a boom than the swage
102 type for your purposes? A. I was, after seeing the tests I was fully satisfied that it could perform whatever it was intended it do for the torpedo net defense.

Q. Have you had any experience with booms built in England for the torpedo net defense? A. I have. I have installed, serviced, refitted British ships fitted with the torpedo net defense.

Q. Do you know approximately how the Union Metal monotube boom compares with the swage pipe, standard swage type boom, in respect to weight, where the booms are for the same rate of capacity? A. For the same rate of capacity, the length and dimensions, the monotube or taper type boom is approximately 50 percent lighter than the swage type boom used on British ships.

Q. What has been your experience with these Union Metal booms since you saw that test in November of 1941? A. I have had general supervision of the installing of 1,600 of these torpedo net booms on United States merchant vessels.

Q. What has been the record or the performance of those 1,600 booms? A. Very satisfactory.

Q. Do you know of your own knowledge approxi-
103 mately what percentage of merchant ships have been built for the Maritime Commission since about the beginning of 1942 that have been equipped with these Union Metal booms for cargo handling? A. Cargo booms?

Q. Yes. A. Approximately 75 percent of all ships built.

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Mr. Mackey: No cross examination.

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104 **H. A. Alvig**, called as a witness on behalf of the Plaintiffs, having been duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Hamilton:

* * * * * * * * * *

Q. What is your present occupation? A. I am in charge of rigging design at the Pusey-Jones Company in Wilmington.

Q. What is the nature of your work there? A. We design and build ships for the Maritime Commission.

Q. How long have you been there? A. I have been there approximately three months.

Q. What was your employment prior to that? A. Before that I was at the Maritime Commission for about six years, in charge of rigging and cargo handling.

105 Q. And prior to that you were in the same line of work? A. Yes, I have been in the same line of work since 1921 in various countries.

Q. What sort of education do you have? A. I am a graduate naval architect from Norway.

Q. During your experience in shipbuilding, did your work involve the design of cargo booms? A. It did.

Q. Can you speak just a little louder, please? What types of booms were you familiar with in your experience? A. With the tapered tubular boom, with the swage pipe booms and also with the pipe booms or the tubular boom that was made out of one piece from a German patent.

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Q. And what was the general shape of that boom? A. The shape was a mid-section and two or more smaller sections, all of them straight, and the connection between the different sizes of sections was curved, very much similar to the swage type.

Q. In other words, it was, you say, similar to the swage type? A. In appearance exactly the same as the swage pipe boom.

106 Q. Now, this tapered type was the Union Metal which we are discussing; is that what you mean by the tapered type? A. Yes.

Q. When did you first see on hear of the tapered type? A. In the early part of 1942.

Q. I refer you to Plaintiffs' Exhibit No. 8, the Marine Standard Bulletin. Are you familiar with that bulletin? A. Yes, I am.

Q. Is the swage type boom with which you are familiar shown in Figure 1 on page 2 of that booklet? A. That is the swage type boom.

Q. How long, approximately, have you been familiar with that type of boom? A. I have seen the booms on the Scandinavian vessels about 1918 and since that time I have seen those types of booms.

Q. Just what circumstances, if you remember, surrounded your first attention to this tapered boom, or the Union Metal boom? A. I was requested by the Commission to attend a test.

Q. By whom? A. By the Maritime Commission.

107 Q. Maritime Commission? A. To attend a test that was being conducted in Baltimore in the early part of 1942.

Q. Yes. A. I was not able to attend then, but I received a report on this test, and shortly after that I was transferred to the Philadelphia office, which was opened, and at that time I received several booklets from your company describing the facilities, the manufacturing process, and also giving a method of calculation of cargo booms.

Q. And what was your reaction to this material you received in respect to the suitability of this boom as a cargo boom? A. I was very much impressed with the materials. It seemed to me that this concern had developed a new boom and also had been able to sustain their product with a calculation that was the first scientific calculation that had ever been seen on cargo booms.

Q. In your opinion, at that time how did this boom compare with the standard swage pipe boom in respect to advantages? A. It was a more efficient boom and it did not possess the swage points which I had seen to fail on tests on shipboard.

Q. What, if anything, did you do about using or trying to use this new boom, the Union Metal boom, in connection with your work? A. Of course, our office was only an approval agency and the material was approved mostly according to contract specifications, written by the Maritime Commission. So I did write the Washington office of the Maritime Commission recommending that the tapered boom be put in the contract specifications to go with the swage type booms. 108

Q. Do you have any knowledge from your own experience as to the extent that these Union Metal booms have been used on merchant ships since they first came to your attention? A. Yes, I had occasion to approve this type of boom for Cl-MAVI vessels and they were the majority of booms on more than 200 vessels, that is, they were the tapered type. They have also been used on corvettes which were built to approval and inspection by our office and, of course, on a number of other ships.

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Cross Examination

By Mr. Mackey:

Q. Could you tell me what percentage of the cargo booms that are now being installed would be of this new type, that is, the Union Metal boom? A. My answer would only be guesswork but I am pretty certain it is more than 50 percent.

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109 **Walter B. Vick**, called as a witness for and on behalf of the Plaintiff, having been first duly sworn, testified as follows:

Direct Examination

By Mr. Hamilton:

* * * * * * * * * *

Q. What is your occupation, Mr. Vick? A. I am manager of engineering sales for the Union Metal Manufacturing Company, Canton, Ohio.

Q. How long have you been so employed? A. Since January 1, 1940.

Q. What was your occupation prior to that time? A. During 1939 I was assistant general sales manager and previous to that time I was a sales engineer. I have been with the company twelve and a half years.

Q. Do you have any technical education? A. I am a graduate of Ohio State University in civil structural engineering.

Q. In your work at the Union Metal, what sort of productions have you been concerned with, generally? A. I have charge of the sales of our strong poles, our tapered 110 monotube poles for supporting signs, transmission wires, distribution and other strain purposes.

Q. What kind of poles are these? A. Tapered tubular poles. Our trade name is "monotube".

Q. Do you have anything to do with the sale of other products than these you mentioned? A. Yes. I have radio antennas and cargo booms.

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112 Q. I believe you were present at this test that was made at Union Metal Company in November of 1941, on a double tapered boom for torpedo net defense? A. Yes, sir.

Q. You appear in the photograph? A. Yes, sir. I 113 appear in the photograph, as well as Captain Sundstrom, and Fleming.

Q. Prior to the time of this test, had you been able to sell and deliver any of these booms? A. I had been able to sell booms before the test, but the Maritime Commission and Gibson Cox insisted on a test being made before the booms would be considered satisfactory.

Q. After this test was made in November, 1941, did you sell any cargo booms to the Maritime Commission immediately or soon thereafter? A. No, I still ran up against difficulty and various members of the Maritime Commission insisted that we test our booms under actual operating conditions before they would consider them. It was a revolutionary design to them and they wanted to see actual tests on those designs.

Q. Did they know all about the test made in November? A. They had full report on the previous test, but still they were skeptical whether it might work under the actual operating conditions as a cargo boom.

Q. Are you familiar with the test that was made in Baltimore of 1942? A. I was present at the test.

Q. And you sold the Maritime Commission prior to that time? A. No, sir.

114 Q. Did you sell them after that time? A. We received our first order, I am quite certain it was July of 1942.

Q. Was the Maritime Commission represented at that test? A. Yes, they were, by Mr. Ebel of the Maritime Commission. He was the official observer.

Q. Who was Mr. David Campbell? A. He was an independent marine surveyor. He also was present at the test.

Mr. Hamilton: I offer in evidence a photostatic copy of a letter bearing the letter head of David O. Campbell, and also his signature at the end, dated May 27, 1942, and ask you to tell me just what that is.

The Witness: That is his report of the test made in Baltimore. It describes the booms tested and he stated that they showed no signs of physical weakness so far as could be seen and he said that the booms and all appurtenances are in excellent order and condition after the test.

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115 Q. After this test at Baltimore, did you sell any quantity to the Maritime Commission, of these booms? A. Since the booms proved so successful in the test, very shortly thereafter we received a very large order.

Mr. Hamilton: I want to offer in evidence as Plaintiff's Exhibit 19, a photostatic copy of a telegraphic order from the Maritime Commission.

By Mr. Hamilton:

Q. Will you identify that? A. The original telegram crossed my desk. It was noted by me in the lefthand column, and it is a wire commitment for 388 ships, of five-ton booms, total number of being 388 booms; and 979, 15-ton booms, and 979 30-ton booms.

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116 Q. Did you continue to receive orders from the Maritime Commission after that? A. We have received orders from that date and we are receiving them at the present time.

Q. Do you have any way of knowing approximately how many Union Metal booms have been sold since your first sale? A. About two weeks ago I examined the records of our company and found we had sold in excess of 51,000 booms.

Q. Do you have any way of knowing whether or not your Union Metal booms are going to be used on merchant ships after this present war is over? A. We have just received within the last month quite a large order for booms which are to be shipped and installed on peacetime ships which are to be built in the shipyard after the war is over, after the war shipping is out of the way, construction.

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117 Cross Examination

By Mr. Mackey:

118 Q. Did I understand you to say you had sold some of these booms before the test? A. No. The T. N. D. Booms we sold on the basis of the tests were satisfactory, then we were to continue. On the cargo booms, the tests were made in April of 1942, and the first order came in in July of 1942.

Q. These sales you mentioned before the tests, they were made subject to the tests? A. Just the T. N. D.'s were made before.

Q. If the test showed they were satisfactory, they would take them? A. They were accepted.

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Francis G. Ebel, called as a witness for and on behalf of the Plaintiff, having been first duly sworn, testified as follows:

Direct Examination

By Mr. Hamilton:

* * * * * * * * * *

119 Q. What is your occupation? A. Naval architect.

Q. With whom? A. United States Maritime Commission.

Q. How long have you been so employed? A. About seven years.

Q. Are you familiar with the double tapered type of ship boom that is shown in the large cut on this advertising reprint of Plaintiff's Exhibit 10? A. Yes, I am.

Q. About how long have you been familiar with it? A. Since the latter part of 1940.

Q. Had you ever seen a ship boom like that before? A. No, sir. I had not.

Q. Are you familiar with the swaged type boom which is shown in page 2 of the American Marine Standard Committee Bulletin? A. Yes, I am.

Q. How long have you been familiar with that type of boom? A. About seven years.

Q. In your work in the Maritime Commission, have you been concerned with the design of these swaged type booms? A. Yes, I have.

120 Q. Prior to 1940 or 1941, how well were you satisfied with the design or performance of these swaged type booms? A. Well, in the year 1940, we had had some failures of booms of that swaged type and we were making

investigation of the design of booms. And we found that these swaged type booms were designed on the basis of a very elementary theory and we set about to examine them more fully and to use a more complete analysis.

We found that they were weak, that is, they did not have the factor of safety which they were supposed to have.

Q. Did you complete this work you were doing to the extent of developing any improvements in the swaged type boom or developing a new design? A. We carried our investigation far enough to improve the design of these swaged type booms, on the basis of a more advanced theory. We were able to redesign them, redistribute them, rather, reapportion the component parts to improve their strength.

Q. How? By adding more weight? A. By, as I say, reapportioning the component parts, enlarging some of the sections in the center and shortening others.

* * * * * * * * * *

121 Q. I believe you were present in Baltimore in April, April 28, 1942, witnessed a test of a Union Metal boom, is that correct? A. That is correct.

Q. Your name appears in the report of the Union Metal Company as representing the United States Maritime Commission, is that how you came to be there? A. That is right. I was there officially for the Maritime Commission.

Q. What, in your opinion, officially as an observer of the Maritime Commission, was the result of the test made at Baltimore at that time, just generally, I mean? A. Well, the boom withstood the standard Maritime Commission test, overload test, successfully, without any signs of weakness or permanent deformation of any kind.

Q. Do you know how it came about that that test was made at Baltimore? A. This tapered type boom was an innovation, as far as the Maritime Commission was concerned. So before considering approving a boom of that type, it required the standard Maritime Commission test of the cargo boom be made.

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Cross Examination

By Mr. Mackey:

Q. In this design of boom where you reapportion the various parts before using a boom like that, you
122 also tested that to see that it withstood the standard load, would you not? A. That is correct.

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Harry O. Rastetter, called as a witness for and on behalf of the Plaintiff, having been first duly sworn, testified as follows:

Direct Examination

By Mr. Hamilton:

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125 Q. How did you happen to select these particular compression members when you thought of this radio tower? A. We thought that the compression member that we had previously considered for the marine boom and gin pole as being very suitable on account of the fact that it more nearly approached the ideal type of compression member for that purpose.

Q. About when did you first install one of these towers? A. The first tower was installed at Welch, West Virginia, in August, 1940.

* * * * * * * * * *

126 Q. Following the installation of that tower at Welch, did you install other towers anywhere else? A. Yes, we installed a total of 13 other towers of that same gin type at five different radio stations.

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128 Q. Do all these radio towers that you have just referred to contain compression members, double-tapered compression members such as shown in your application drawing? A. Yes.

129 Q. What has been the performance of all these radio towers? A. They have been very satisfactory and they are still in use.

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130 Cross Examination

By Mr. Mackey:

Q. The allowed claim in your parent case was for the complete antenna tower made up for these various sections having electrically connected joints at the small end, plus articulated joints, were they not? The whole structure? A. Flexible joints between sections.

Q. Those claims include all those elements, do they not? A. I believe they do.

Q. What is that? A. I said I believe they do.

Mr. Mackey: That is all.

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III.

EXHIBITS.

Excerpts from Plaintiffs' Exhibit No. 1.

169 **Specification**

To All Whom It May Concern:

Be it known that we, Edmund W. Riemenschneider and Harry O. Rastetter, citizens of the United States, residing at Canton, in the County of Stark and State of Ohio, have invented new and useful Improvements in Radio Antenna Tower, of which the following is a specification.

The invention relates generally to antennae or to supports for antennae for radio transmission, and more particularly to the construction of high towers and masts used in radio broadcasting and transmission.

It is recognized that a single vertical conductor is a very efficient antenna for radio broadcasting and transmission, but it is difficult to support such an antenna particularly as the usual broadcasting frequencies require an antenna tower several hundred feet in height. Accordingly, many such towers have included a very large number of structural members as well as guy wires, and such structural members absorb a considerable amount of radio energy and thus reduce the efficiency of the tower to a substantial extent.

Where the tower itself constitutes the antenna and is of rigid construction throughout, the construction and erection of the tower involves considerable labor, time and expense. Moreover, such a tower must be very well guyed and structurally very strong to resist wind loads, and the nodal vibrations which inherently occur in such a structure.

An object of the present invention is to provide an articulated antenna tower made up of novel compression members each having maximum compressive strength and exceptionally good radio transmitting properties.

170 Another object is to provide an articulated antenna tower in which the members take all of the compression load and the tension forces are taken by guy wires.

Another object is to provide an articulated antenna tower having self supporting tubular members so designed as to give maximum compressive and wind load strength with minimum weight, and at the same time having a contour offering a minimum of resistance to wind.

A further object is to provide an articulated tower having flexible joints eliminating the occurrence of nodal vibrations and permitting one or more members to be out of alignment without affecting the alignment of other members, and without transmitting bending moments to adjacent members.

Another object is to provide an articulated tower having flexible joints between tubular compression members each designed to act like a beam against wind loads.

And finally, it is an object of the present invention to provide a novel antenna tower which combines maximum radio transmitting efficiency with economy of material, which can be erected rapidly and cheaply to any required height, and which is inexpensive to maintain and has a pleasing appearance.

These and other objects are attained by the parts, elements and structures comprising the present invention, which are shown by way of example in the accompanying drawings and hereinafter described and claimed.

In general terms the invention may be stated as including an antenna tower consisting of a plurality of tubular compression members connected together by means of flex-
ible joints, each compression member being a thin
171 elongated tube having its greatest lateral dimension
centrally of its ends, and being gradually tapered
from said central portion to the ends, and guy wires connected to the upper end of each compression member.

[This deletion is printed on pages 105, 107-108, Exhibit No. 3]

* * * * * * * * * *

174 As shown an electric jumper cable 23 is provided
for electrically connecting the two compression mem-
bers around each joint, and the abutting plates 18 and 20
are provided with registering holes 18′ and 20′ for
175 permitting the passage of service cables up through
the tower. The ears 11, provided near the top of
each compression member for attaching guy wires thereto, are preferably welded to the member 6 so as to be located just below the sleeve 21 of the flexible joint when the tower is erected, as shown in Fig. 3.

In erecting a radio tower according to the present invention, the bottom member 6 is first raised in position with its bottom end anchored to a suitable base as previously described, the guy wires 7 having been attached to the ears 11 of the member before raising it. The lower ends of the guy wires are then put under considerable tension and anchored to the anchor blocks 8, and there being a plurality of insulators 24 of usual construction incorporated in the guy wires.

By means of a gin pole attached in usual fashion to the upper end of the bottom compression member 6, the next compression member 6 is raised with its guy wires 7 attached to its upper end and with the sleeve 21 of the flexible joint 17 attached to its lower end, and the sleeve is positioned over the upper end of the bottom compression member. The upper guys 7 are then attached to their anchors under a required amount of tension, and then another member 6 may be erected in the same manner if desired. The amount of tension on the guy wires 7 is calculated to take substantially all of the tension forces to which the tower is subjected, so that the members 6 will take all of the compression load.

When the improved articulated tower has flexible joints between the members, the occurrence of nodal vibrations inherent in a rigid tower is eliminated, and said joints permit some misalignment of one or more members without affecting the other members.

[This deletion is printed on pages 108-109, Exhibit No. 3]

* * * * * * * * * *

176 It has been determined in actual practice that an antenna made up of applicants' novel tubular compression members has exceptionally good radio transmitting and broadcasting properties.

The present improved radio antenna tower is pleasing in appearance, and inexpensive to erect and maintain.

177 We claim:

1. An articulated radio antenna tower including a plurality of tubular compression members supported end to end upon one another, means providing flexible joints between said members, each of said members consisting of tubular sections joined together in end-to-end abutment and having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends, and guy wires attached under tension to the upper end of each said member.

2. An articulated radio antenna tower including a plurality of tubular compression members supported end to end upon one another, means providing flexible joints between said members, said means including a rounded abutment on one adjoining member and a sleeve secured on the other adjoining member and loosely encircling the end portion of said one adjoining member, each of said members having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends, and guy wires attached under tension to the upper end of each said member.

* * * * * * * * * *

180 14. A compression member comprising two elongated frusto-conical tubes *in substantial axial alignment and* having their large ends joined in abutment.

15. A compression member comprising a central cylindrical tube and two frusto-conical tubes *in substantial axial alignment and* having their large ends joined in abutment with the ends of said cylindrical tube.

[Amended in italics according to Amendment "A", page 46]

[Added new claims 16 and 17 by Amendment "B", 10-6-42 will be found at page 52; new claim 18, Amendment "D" under Rule 109, 10-19-43 will be found at page 73; drawings accompanying this application same as those found on pages 110, 111, 112.]

* * * * * * * * * *

185 Mailed Nov 19 1941

Div. 33 Room 6096 Paper No. 3

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United States Patent Office
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All communications respecting this application should give the serial number, date of filing, and name of the applicant

Please find below a communication from the Examiner in charge of this application.

CONWAY P. COE
WB/k *Commissioner of Patents.*

Applicant: Edmund W. Riemenschneider et al.
Serial No. 405,378
Filed Aug. 4, 1941
For Radio Antenna Tower

Frease & Bishop,
Harter Bank Bldg.,
Canton, Ohio.

References:

Brackerbohm	1,034,760	Aug. 6, 1912	250-33
Gerten et al	1,897,373	Feb. 14, 1933	”
Lingo	2,162,675	June 13, 1939	”
Gray	1,257,699	Feb. 26, 1918	189-14
Pfaff	1,877,583	Sept. 13, 1932	189-26
Wallace	2,173,525	Sept. 19, 1939	280-106
Bailey	2,157,885	May 9, 1939	285-137

Claims 1 to 12, inclusive, are rejected on Lingo in view of Brackerbohm. The section of Lingo may obviously have the tapered formation of Brackerbohm and the various sections may be joined either by the rigid joint of Lingo or the flexible joint of Brackerbohm. Also, if desired, each section might obviously have the shape shown by Gerten et al.

Claim 13 is rejected as the above in view of Bailey, or Gray. Obviously the standard type coupling shown by Bailey or Gray or any other type of coupling can be used to join the sections of Lingo.

Claims 14 and 15 are rejected on Wallace in view of Pfaff. Wallace shows a tubular central section of constant diameter butt welded to two tapered end tubes. Obviously the central sections might be omitted for some uses. Cylinders or cones as shown by Pfaff may evidently be substituted for the specific tubes of Wallace.

W E ROE
Actg. Examiner.

W. B.

186 Mail Division May 11 1942 U. S. Patent Office
U. S. Patent Office May 12 1942 Division 33

Amendment "A"

To the Commissioner of Patents:

In response to Office Action of November 19, 1941, in Division 33, Room 6096;

In the matter of the application of E. W. Riemenschneider et al. for Radio Antenna Tower, filed August 4, 1941, Serial No. 405,378, the application is hereby amended as follows:

By inserting the words—consisting of tubular sections joined together in end-to-end abutment and—before the word "having" in line 4 of claim 1 and in line 3 of claim 4, and before the word "being" in line 5 of claim 3 and in line 4 of claim 12;

By inserting the words—consisting of tubular sections welded together in end-to-end abutment and—before the word "having" in line 2 of claim 9;

By canceling claim 13 as not being patentably distinct from certain other claims;

By inserting the words—in substantial axial alignment and—before the word "having" in line 2 of each of claims 14 and 15.

Remarks

Claims 1 to 12 inclusive were rejected on Lingo in view of Brackerbohm, on the ground that the section of Lingo may obviously have the tapered formation of Brackerbohm, and the sections may be joined by the rigid joint of Lingo or the flexible joint of Brackerbohm.

187 Claims 1, 3, 4, 9 and 12 have each been amended to more particularly distinguish from Lingo in view of Brackerbohm and now define each of the compression members in the tower as consisting of tubular sections joined together in end-to-end abutment and tapering convergingly or gradually from its greatest lateral dimension at its central portion.

As stated on page 2 of Applicants' specification the objects of Applicants' invention include the provision of an antenna tower having self supporting tubular members designed to give "maximum compressive and wind load strength with minimum weight". Another object is to provide an antenna tower which "combines radio transmitting efficiency with economy of material."

As set forth in lines 3 to 10 of page 4 of Applicants' specification, the particular elongated cigar-like shape gives maximum compressive strength for minimum weight of material, and acts like a beam in a tower structure to resist wind loads. It is well known that a column must be strongest at its central portion and may have its least resistance to compression at its ends. Therefore, Applicant's elongated cigar-shape tubular compression member is obviously strongest at its central portion and tapers gradually outwardly to the ends thereof, so that the compressive stresses are distributed uniformly throughout the member and there is no excess of metal at points where it is not needed for strength.

The Lingo patent shows members A, B, C, etc., which are made up of three sections of pipe telescoped together, and the weakest points of this member in compression will be at the telescopic joints between the sections instead of at the ends. Accordingly, the members of Lingo are heavier and stronger than necessary at the ends, and the
188 middle section is of larger diameter between its central portion and the joints than is required. Thus the excess metal at these two points represents an amount exceeding that which is necessary to take care of the compression loads to which the member is subjected.

Moreover, the telescoped joints between the Lingo sections provides an overlap of metal which greatly adds to their weight as well as to the cost of the metal. Applicants' claims 1, 3, 4, 9 and 12 as amended clearly distinguish from Lingo in specifying that each of the compression members consists of tubular sections joined together in end-to-end abutment, and further distinguishes from Lingo in specifying that the members taper gradually from their greatest dimension at the central portion.

The Brackerbohm patent shows members 2 and 3 which are not tubular and which do not approach the shape shown and claimed by Applicant. Brackerbohm's sections taper sharply at the ends only, and cannot be said to taper gradually from the central portion to the ends as claimed. Brackerbohm's sections do not have the elongated cigar shape which Applicants believe is the essence of their invention, because that particular shape approaches the ideal compression member, that is, maximum strength with minimum weight.

The Examiner has referred to the Gerten patent as showing a shape similar to Applicants', but Gerten's tower is the conventional lattice structural type, and does not make obvious the production of an elongated cigar shape from frusto-conical tubular sections joined in end-to-end abutment. It is not new merely to make something into an elongated cigar shape, but Applicants are the first to recognize that that particular shape is especially adapted for the compression members in a radio antenna tower, and the first to devise such members from gradually tapered tubes.

189 Claim 2 distinguishes from Lingo in view of Brackerbohm for the same reasons as the amended claims, and additionally distinguishes in calling for Applicants' specific flexible joint construction. The claim calls for a rounded abutment on one adjoining member and a sleeve on the other adjoining member loosely encircling the end portion of said one adjoining member. As shown in Fig. 3

this particular joint is waterproof because the sleeve encloses the joint proper, and provides for positively limiting the lateral movement of one adjoining member with respect to the other, so that in case the guys on one side of Applicants' tower loosen or stretch, the sleeve provides for restricting the members from moving laterally beyond a certain point.

Brackerbohm's joint is merely a ball and socket affair which is not waterproof and not positively limited in lateral movement, except by the engagement of the member f with the member e which would intend to pry the ball a out of its socket.

Claims 5, 6 and 10 each distinguish from Lingo in view of Brackerbohm for reasons previously discussed, in specifically reciting each of the tubular compression members as including two elongated frusto-conical tubes having their large ends joined in abutment. Claims 7, 8 and 11 distinguish from these references in specifying that the tubular compression members each comprise a central cylindrical portion with two elongated frusto-conical tubes having their large ends joined in abutment with the ends of the cylindrical portion.

The Lingo and Brackerbohm references taken singly or combined do not show radio towers having compression members formed of tubular sections abutted end-to-end to provide an elongated gradually tapered member which approaches the ideal compression member having maximum strength for minimum weight.

190 Claims 14 and 15 were rejected on Wallace in view of Pfaff on the ground that Wallace shows a tubular central section of constant diameter butt-welded to two tapered end tubes and the cylinders or cones shown by Pfaff may evidently be substituted in Wallace.

It is submitted that the Wallace patent is obviously not at all pertinent to the present invention, because in the first place his tubular members 20 are not compression members at all but merely the side members of an automobile frame.

Moreover, the members 20 of Wallace are not adapted for use as a compression member because the tapered end sections 21 and 23 are distinctly curved.

There is no logical reason for substituting the tapered conical tubes of Pfaff in Wallace in order to make a compression member because Wallace uses his tubes to make a column tapering uniformly from its large end to its small end.

Claims 14 and 15 have been amended to more particularly distinguish from Wallace and Pfaff in reciting a compression member comprising two frusto-conical tubes in substantial axial alignment and having their large ends joined in abutment with each other or with the ends of a central cylindrical tube.

It is submitted that unless one has the present invention before him, it is not obvious to piece together the particular compression member claimed from Wallace and Pfaff, especially since Wallace is in an entirely unrelated art and for an entirely different purpose.

It is submitted that Applicant's claims are clearly allowable over the references of record in view of the following cases:

191 Ex parte Floyd 43 USPQ 195 in which the Patent Office Board of Appeals held that:

"What the Examiner has done is to analyze Applicant's invention in view of the prior art. Even presuming that such an analysis can be made, it does not follow that the claims are rejectable unless applicant has merely followed a course charted by the prior art or one that is obvious."

In re Smith, 49 USPQ 90, 97 in which the Court of Customs and Patent Appeals held that:

"It seems to us that if obviousness can be said to be derived from the references, on the record here it must necessarily spring from knowledge derived from Appellant's structure."

Accordingly, an allowance of the application in its present form is respectfully requested.

Respectfully submitted at Canton, Ohio, this 8th day of May, 1942.

FREASE & BISHOP
ERH:BJM *Attorneys for Applicants.*

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192 Div. 33 Room 505 Paper No. 5 Rej.

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Please find below a communication from the Examiner in charge of this application.

Conway P. Coe, *Commissioner of Patents,*

Applicant: Edmund W. Riemenschneider
Ser. No. 405378
Filed Aug. 4, 1941
For Radio Antenna Tower

Patent Office Aug 19 1942 Mailed

Frease & Bishop
Harter Bank Bldg.
Canton, Ohio

As amended May 11, 1942:

Claims 1 to 12, inclusive, 14 and 15, remain in the case.

Claims 4, 6, 8, 9, 10, 11 and 12 are rejected on Lingo in view of Wallace. The latter shows the butt welding of tubes end to end. No invention is seen in so constructing the sections of Lingo. The middle cylindrical section may obviously be omitted, if desired, as taught by Gerten.

Claims 14 and 15 are rejected on Wallace. The sections are in axial alignment. At any rate, the various bends in the sections are merely added features. Obviously a simple straight line member may be made up in the manner shown by Wallace, if it is not necessary to use any curved form.

Claims 1, 2, 3, 5 and 7 are allowed.

J. S. HULL
Examiner

W. B.

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193 Intf 80509
10-5-42

Mail Division Oct 7 1942 U. S. Patent Office
U. S. Patent Office Oct 9 1942 Division 33

Amendment "B"

To the Commissioner of Patents:

In response to Office Action of August 19, 1942, in Division 33, Room 505;

In the matter of the application of E. W. Riemenschneider, et al., for Radio Antenna Tower, filed August 4, 1941, Serial No. 405,378, the application is hereby amended as follows:

By cancelling claims 4, 6 and 8 to 12 inclusive;

By cancelling claims 14 and 15 and rewriting the same as follows:

—16. A compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantial axial alignment *throughout their length,* with their large ends joined in abutment, and means at one end of said member for receiving and transmitting compressive forces longitudinally through said member.

—17. A compression member having equal strength in all lateral directions comprising a central cylindrical tube and two frusto-conical tubes in substantial axial alignment *throughout their length* and having their large ends joined in abutment with the ends of said cylindrical tube, and

[Amended in italics according to Amendment "C", page 58] means at one end of said member for receiving and transmitting compressive forces longitudinally through said member.—

Remarks

Claims 1, 2, 3, 5 and 7 stand allowed. Claims 14 and 15 have been rejected on Wallace, the Examiner stating that the various bends in the sections are merely added features and that a simple straight line member may be made up in the manner shown by Wallace.

194 The Wallace patent shows an automobile frame having tubular side members, and the side members are not intended or adapted to be compression members. They are beams forming part of an automobile frame and are not subjected to any endwise compressive forces.

There is no reason why any one would change the sections of Wallace to straight line members in an attempt to make a compression member, when they are not used as compression members and are not intended to be used as compression members in Wallace. Moreover, even if the sections of Wallace were straightened they would not be satisfactory as compression members for use in a radio tower and the like, where it is essential that the compression members have equal strength in all directions. A rectangular cross section of Wallace would be weaker in one lateral direction than in another, and excessive metal would be required to obtain the necessary strength.

Applicants' claims 16 and 17 clearly distinguish from Wallace in calling for a compression member having equal strength in all lateral directions and comprising frusto-conical tubes which have a circular cross section as distinguished from the rectangular cross section of Wallace.

Claims 16 and 17 additionally distinguish from Wallace in calling for means at one end of the compressive member for receiving and transmitting compressive forces longitudinally through said member. Thus the ears 11 at one end of applicants' compressive members 6 and 6a provide means

for attaching the cables 7 which apply the compressive forces, and the ears receive and transmit these forces longitudinally through the compression member. There is no such means suggested in Wallace, and there is no reason why any one would think of providing such means in Wallace when Wallace shows beam members as part of a
195 frame and does not disclose compression members
of any kind, much less compression members as claimed.

It is submitted that claims 16 and 17 are clearly patentably distinct over Wallace and the other references of record, and an allowance of the application in this present form is accordingly respectfully requested.

Respectfully submitted at Canton, Ohio, this 6th day of October, 1942.

FREASE & BISHOP,

Attorneys for Applicants.

ERH:MC

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196 Div. 33 Room 505 Paper No. 7

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Please find below a communication from the Examiner in charge of this application.

Conway P. Coe, *Commissioner of Patents,* Patent Office Oct 14 1942 Mailed

Applicant: Edmund W. Riemenschneider et al
Ser. No. 405,378
Filed Aug. 4, 1941
For Radio Antenna Tower

Frease & Bishop,
Harter Bank Bldg.,
Canton, Ohio

Responsive to amendment of October 7, 1942:

Claims 1, 2, 3, 5, 7, 16 and 17 are now in the case.

Claims 16 and 17 are rejected on Wallace for reasons of record. Applicants' member is only incidentally a compression member. The reason for its double tapered shape is that it is designed as a beam, simply supported at both ends. At any rate the shape of such a mast member or compression member is old and well known, as shown, for example by Gerten. Means for receiving and transmitting compression forces are inherently present in any member. Moreover, it is obvious that the member of Wallace in actual use will have various means attached to it for supporting the axles, and that such means can transmit compressive forces and will do so at times. The member of Wallace has generally the same shape as the member of applicant for the same reasons, namely in order to increase the moment of inertia in proportion to the increase in bending stress at the mid-portion of the member. The claims cannot be allowed because they merely set forth the most elementary form of the Wallace device devoid of the slight change introduced by reason of the specific use to which his member is put.

Claims 1, 2, 3, 5 and 7 stand allowed.

This action is made final.

J. S. HULL
Examiner

W. B.

* * * * * * * * * *

198 Div. 33 Room 505 Paper No. 9

Department of Commerce
United States Patent Office
Richmond, Va.

(Copy sent assignee)

Please find below a communication from the Examiner in charge of this application.

Conway P. Coe, *Commissioner of Patents.*

Mailed Oct 15 1942

Applicant: Edmund W. Riemenschneider et al
Ser. No. 405,378
Filed Aug. 4, 1941
For Radio Antenna Tower

Frease & Bishop
Harter Bank Bldg.
Canton, Ohio

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with other, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 80509. On or before Nov. 16, 1942, the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, endorsed on the envelope. The subject-matter involved in the interference is:

Count 1. An articulated radio antenna tower including a plurality of tubular compression members supported end to end upon one another, means providing flexible joints between said members, each of said members consisting of tubular sections joined together in end-to-end abutment and having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends, and guy wires attached under tension to the upper end of each said member.

Count 2. An articulated radio antenna tower including a plurality of tubular compression members supported end to end upon one another, means providing flexible joints between said members, said means including a rounded abutment on one adjoining member and a sleeve secured on the other adjoining member and loosely encircling the end portion of said one adjoining member, each of said members having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends, and guy wires attached under tension to the upper end of each said member.

The interference involves your application above identified and an application for Mast Construction, filed by James W. Moorhead, whose post office address is 1361 Woodland Avenue, N. W., Canton, Ohio and whose attorney is Milburn & Milburn, Union Commerce Building, Cleveland, Ohio.

The relation of the counts of the interference to the claims of the respective parties is as follows:

Counts	Moorhead	Riemenschneider
1	21	1
2	22	2

Counts compared.

199 Claims 3, 5 and 7 will be held subject to rejection as unpatentable over the issue in the event of an award of priority adverse to applicant.

J. S. HULL
Examiner

W. B.

200 **Amendment "C" Under Rule 109.**

Mail Division Jun 5 1943 U. S. Patent Office
Docket Division Jun 7 1943 U. S. Patent Office

To the Commissioner of Patents:

In response to Office Action of October 14, 1942, in Division 33, Room 505, finally rejecting Claims 16 and 17, and following the Declaration of Interference, No. 80,509, on

April 22, 1943, of RIEMENSCHNEIDER and RASTETTER, v. MOORHEAD;

In the matter of the Application of E. W. RIEMENSCHNEIDER ET AL. for RADIO ANTENNA TOWER, filed August 4, 1941 Serial Number 405,378, the Specification is hereby amended as follows:

In page 2, line 13, correct the word "*movements*" to be—*moments*—.

In page 4, line 15, after the numeral "*10*", insert the phrase—*and being in substantial alignment throughout their length*—.

In page 4, at the end of line 15, after the word "*member*", insert the phrase—*having equal strength in all lateral directions and* —.

In page 5, line 7, after the word "*straight*", insert the word—*tubular*—.

In page 5, line 8, after the word "*member*", substitute a comma for the period; and

In page 8, at the end of line 11, after the numeral "*5*", substitute a semi-colon for the period;

And in both places follow with the phrase—*the tubular sections being in substantial axial alignment throughout their length, and having equal strength in all lateral direactions.*—

In each of Claims 16 and 17, entered by Amendment "B" filed October 7, 1942, in line 3, after the word "*alignment*", insert the phrase—*throughout their length*—.

Please file the Affidavit of Applicants submitted
201 herewith, and a favorable consideration and allowance of Claims 16 and 17 as amended, is requested, in view of the showing of said Affidavit and in view of the following—

Remarks

The Description and Claims 16 and 17 have been amended to more particularly point out the structural characteristics which the Applicants claims as their invention, and to more definitely distinguish the invention from the side rail of the automobile frame shown in the Wallace Patent 2,173,525, the principal reference upon which the Claims have been finally rejected.

Claims 16 and 17, as amended, with emphasis on certain structural characteristics, are as follows:

"16. A compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantial axial alignment throughout their length with their large ends joined in abutment, and means at one end of said member for receiving and transmitting compressive forces longitudinally through said member."

"17. A compression member having equal strength in all lateral directions comprising a central cylindrical tube and two frusto-conical tubes in substantial axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at one end of said member for receiving and transmitting compressive forces longitudinally through said member."

In considering the former claims the Examiner has no doubt, unconsciously appraised and applied the prior patents with a knowledge of the disclosure of the pending application; which is not permissible, under the authorities cited below.

In other words, a perception of the problems now presented and a possible solution of the same by the structural characteristics now disclosed, has been attributed to 202 prior patentees, without any justification in the disclosure of their patents.

The Final Rejection

Referring to the final rejection, "on Wallace for reasons of record," it is not true that "Applicants' member is only incidentally a compression member"; and it would be more correct to say that it is only incidentally a beam member.

The very first object of the invention, as set forth at the bottom of page 1 in the Specification, is as follows:

"An object of the present invention is to provide an articulated antenna tower made up of novel compression members each having maximum compressive strength and exceptionally good radio transmitting properties."*

Other objects of the invention are set forth in Page 2 of the Specification, as follows:

"Another object is to provide an articulated antenna tower in which the members take all of the compression load and the tension forces are taken by guy wires."

"Another object is to provide an articulated antenna tower having self supporting tubular members so designed as to give maximum compressive and wind load strength with minimum weight, and at the same time having a contour offering a minimum of resistance to wind." . . .

"Another object is to provide an articulated tower having flexible joints between tubular compression members each designed to act like a beam against wind loads."

And again in page 4, it is said that:

"The ideal shape and design for a compression member is one in which the greatest strength is at the center, and which tapers gradually from the center to the ends.

"Such a shape or design may be termed an elongated cigar-like shape and gives maximum compressive strength for minimum weight of material, and is particularly desirable in a tower structure because it acts like a beam in resisting wind loads."

203 Throughout the remainder of the Specification the tubular element of the antenna tower is referred to as a "novel tubular compression member" or as the "compression member", which clearly shows that the same is not "incidentally" a feature of the invention. On the contrary, it is the primary and most important part of the Antenna Tower.

As a matter of fact, the Affidavit submitted herewith shows that the need for an improved compression member, per se was developed by the present Applicants long before the idea of using same as an essential element of a Radio Antenna Tower was developed; which is the reason why the same was made the separate subject matter of original Claims 14 and 15, as more fully amplified in amended Claims 16 and 17.

It is not true that Applicants' tapered tubular member "is designed as beam, simply supported at both ends", in any proper sense; because a beam is usually horizontal, with its ends supported to allow a bending of the beam. (Kent 10th Ed., page 347).

On the other hand, Applicants' tapered tubular member was designed as a column, which is a "structural member under axial compression" (Id. page 360). It is normally vertical and is supported entirely at the lower end, and is designed to have a maximum compression strength with an incidental resistance to a moderate lateral load.

The general shape of a mast member may be old, as in Gerten, but that reference shows a square frame-
204 work, which is so frail as to require "secondary sup-
ports at or near the waist of the tower to maintain the vertical position." (Page 3, lines 3 to 5, of the Gerten Patent). It is only the lower portion of the Gerten column, below the waist, which is a compression member, the upper portion being a cantilever beam. (Kent p. 347).

It may be true that "Means for receiving and transmitting compression forces are inherently present in any member"; as stated by the Examiner; but it is just as true that Wallace does not show or intend to use any such means, and that he was not concerned in any manner with the use of the side rails as compression members.

It may also be true that the side rails of Wallace may have means for supporting axles; but it is not true that such means will "transmit compression forces", throughout its cross section, but will support the side rails as substantially horizontal beams.

Nor is it true that the side rails of Wallace have

"Generally the same shape as the member of Applicants' . . . to increase the moments of inertia in proportion to the increase in bending stress at the mid-portion of the member."

because the side rail units have relatively small lateral strength, as shown by the presence of the "tubular cross members", 37, 38 and 39, for "rigidifying the tubular structure of such units." (Page 1, line 22 of the Wallace Patent).

205 The Examiner's final reason for the rejection, to wit,

"The Claims cannot be allowed because they merely set forth the most elementary form of the Wallace device devoid of the slight change introduced by reason of the specific use to which his member is put."

This conclusion is not well grounded, and it naively admits that the Wallace side rails in an automobile frame are intended for an entirely different specific use from a Radio Antenna Tower. The Claims do not "merely set forth the most elementary form of the Wallace device", because there is nothing in the Wallace disclosure to justify such a statement.

Moreover, the Claims do not call merely for a "slight change" from the beam members of the Wallace device, but call for a complete and radical departure therefrom, and there is nothing whatever in the Wallace patent to teach or suggest the essential structural characteristics which are defined by the Claims to render the essential element useful as a compression member.

And finally, if it were true, as suggested by the Examiner, as the last reason for finally rejecting the claims, that "they merely set forth the most elementary form of the Wallace device by reason of the specific use to which a member is put," it is passing strange that neither Wallace, who is only concerned with the side rail of an automobile frame, nor Pfaff, who is only concerned with a tapered flag

pole column, nor Brackerbohm, Gerten, Gray, Bailey, Lingo, or Berndt, who were all concerned with the construction of a radio Antenna Tower during the past thirty years, ever conceived or perceived, or disclosed the idea of such a tower made up of compression members as essen-
206 tial elements thereof, having the structural characteristics which are definitely defined and particularly pointed out in pending Claims 16 and 17, as amended.

The fact that the references do not solve the several problems which have been solved by the Applicants, and do not suggest the manner in which their disclosures might be modified to obtain Applicants' new results, indicates that the solution which now seems obvious to the Examiner is only obvious to him after having been shown the problem and Applicants' solution of the problem.

The claims are entitled to be allowed under the rule set forth In re Replogle, 62 F. (2d) 188, wherein it is said by the Court of Customs and Patent Appeals at page 190 that:

"One thing only is certain, that the changes were not suggested until appellant filed his application herein.

"In this view of the matter, we are unable to come to the conclusion that the improvements which appellant has made were obvious."

The same rule is stated in another way in Lakeshire v. Shafford, 72 F. (2d) 497, wherein it is said at page 499 that:

"Whether patent involves invention is to be determined in the light of historical facts rather than what might appear to be simple in the light of hindsight."

This rule has also been enunciated by the Honorable Board as in Ex Parte Frank E. Ward, 35 USPQ 538, where it is said at page 539 that:

"It appears to us that neither one nor all of the patents cited teach the invention involved here and defined in the appealed claims.

"Applicant has encountered a certain difficulty in connection with a discharge device having an electrode coated with an alkaline material and has provided means for overcoming this difficulty.

207 "The patents neither disclose the difficulty nor teach how it is overcome.

"The combination recited in the claims is clearly new as far as the art cited is concerned.

"If the patents were to be combined as indicated in the rejection no one would know why they should be combined or whether the result desired by the applicant would be obtained.

"The disclosure of the present application is the only one before us tha teaches this."

The rule is but another statement of the rule set forth by the United States Supreme Court early stated in Topliff v. Topliff, 145 U. S. 156, at page 161, as follows:

"It is not sufficient to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapter, nor actually used, for the performance of such functions."

It has been shown that applicants' structure satisfied a long standing and existing need in the Radio Antenna Tower art. The Examiner in holding applicants' contribution to be without invention, acts contrary to the rule of the United States Supreme Court in Paramount v. American, 294 U. S. 464, 474, and of the Court of Appeals of the District of Columbia in Thornton v. Coe, 40 USPQ 85, 93, in both of which cases it is said:

"Where the method or device satisfies an old and recognized want, invention is to be inferred, rather than the exercise of mechanical skill."

Other cases equally pertinent to the present situation are In re Kaplan, 110 F. (2d) 670, wherein the Court of Customs and Patent Appeals said at page 672 that:

"In the instant case it is apparent that the applicant has taught a definite step which the prior art cited did not teach. Furthermore, he states a result distinctly different from the result obtained in the operation of any of the steps defined in the patents cited as references . . .

208 "Under such circumstances, we are of opinion that the claims should be allowed."

And In re Brown, 25 USPQ 134, wherein the Court of Customs and Patent Appeals said at page 136 that:

"The difficulty in applying these references to the appellant's disclosed device, is that these prior art appliances were not intended to operate in the same manner as does appellant's device, and, hence, to attempt to read the claims here upon the prior art requires the addition of features in construction not shown or suggested by the prior art."

What the Examiner has done in this case is to analyze Applicant's invention in view of the prior art, which is not permissible as stated by the Honorable Board in Ex Parte Giaimo, 43 USPQ 22, wherein it is said that:

"Even if applicant's invention can be analyzed, as indicated by the examiner, no art has been cited to show that such a change in Bonanno would be obvious to those skilled in the art. Such a change would not be suggested to anyone on the art cited in this record unless he first saw and understood applicant's invention.

"In effect, the examiner is using the disclosure in this application as part of the prior art against the claims. Obviously, any rejection which can be reduced to such a basis is untenable."

The same rule is applied by the Honorable Board in Ex Parte Floyd, 43 USPQ 195, wherein it is said that:

"We are satisfied that no one skilled in the art as is illustrated by the cited patents could have arrived at applicant's invention by the exercise of ordinary skill.

"What the examiner has done is to analyze applicant's invention in view of the prior art. Even presuming that such an analysis can be made, it does not follow that the claims are rejectable unless applicant has merely followed a course charted by the prior art or one that is obvious.

"Here, the examiner by his proposed modifications, destroys completely the ideas of the prior art references and builds up what he alleges is applicant's structure. The Examiner thus makes applicant's invention after he has read the application."

209

Conclusion

The reconstruction and combination of references made by the Examiner in rejecting the appealed claims, is according to the authorities, an improper basis for rejection. The novel combination of structural characteristics claimed constitutes a substantial advance in the art, solves a problem, satisfies an existing need, and produces results neither solved, satisfied nor appreciated by the references.

It is therefore believed that said Claims 16 and 17 as amended define patentable subject matter, and that said claims should be allowed by the Examiner.

Very respectfully submitted at Canton, Ohio, June 4, 1943.

FREASE & BISHOP
By HARRY FREASE
Attorneys for Applicants.

210 Mail Division Jun - 5 1943 U. S. Patent Office

Original for The Primary Examiner

In The United States Patent Office

Before the Primary Examiner

In Division 33, Room 505

Affidavit Under Rule 76

Application of Edmund W. Riemenschneider, and Harry O. Rastetter, for Radio Antenna Tower,

Filed August 4, 1941,

Serial No. 405,378.

Affidavit of Edmund W. Riemenschneider and Harry O. Rastetter

State of Ohio, Stark County, ss:

Edmund W. Riemenschneider and Harry O. Rastetter, the Applicants, both being duly sworn, depose and say respectively that:

Edmund W. Riemenschneider is 56 years of age, was graduated as a Mechanical Engineer in the Case School of Applied Science in 1909; was Engineer and Assistant Master Mechanic of The American Steel & Wire Company, Blast Furnaces and Steel Mills, for some six years therafter; was General Superintendent of The Cleveland Metal Products Company, makers of Perfection Stoves and Kitchen Utensels, at Cleveland, Ohio, for some three years thereafter; was General Superintendent of Parrish & Bingham, makers of Automobile and Truck Frames, at Cleveland, Ohio, for some five years thereafter; was Factory Manager of The Vital Manufacturing Company, makers of Vacuum Cleaners, Spark Plugs, Grease Guns, etc., at Cleveland, Ohio, for one year thereafter; and in January 1926 became Development Engineer of The Union Metal Manufacturing Company, and for some five years has been Chief Engineer of said company:

211 Harry O. Rastetter is 57 years of age, attended Ohio Wesleyan University at Delaware, Ohio, from 1908 to 1910; on September 1, 1910 became a Drafting Engineer for the Union Metal Manufacturing Company at Canton, Ohio, and for some twenty-five years last past has been the Chief Designing Engineer of said company, engaged in the manufacture of Tubular Poles, Piles, and Ship Booms.

The affiants say further that during the year 1939 while witnessing the methods used by structural contractors in erecting steel work in building additions to the factories of the Union Metal Manufacturing Company by use of built-up structural booms, they developed the idea of making such a boom of tapered tube members with the larger ends welded together, which could be cut into sections to be bolted together, for convenient handling and carrying to and from the place of use; which idea was embodied in a drawing of a gin pole, a photostatic copy of which is attached hereto as Applicants' Exhibit A, which drawing was made by W. K. Riemenschneider under the direction of said E. W. Riemenschneider, was completed on February 8, 1939, some months before the idea of using such a compression member in the construction of a Radio Tower was conceived or developed:

That it was the idea of so constructing a compression member which rendered it possible to develop the Radio Antenna Tower which is illustrated and described in the above identified application; and in early November 1941 said The Union Metal Manufacturing Company made Ship Booms substantially like the Gin Pole shown in said drawing, Applicants' Exhibit A, for the British Admiralty, and subsequently, said company has made and is now making such Ship Booms for the U. S. Maritime Commission Liberty Ships, and for U. S. Navy War Vessels; as a result of which said Company has received official notice that it will be awarded the Maritime "M" for supplying such compression members.

212 That the gin poles or tapered tubular booms shown in said drawings are 100% compression members when in vertical position, and are not beams in any proper sense of the word; and when used as an Antenna Tower or part thereof they are only incidentally subject to the lateral impact of the wind as a force tending to deflect them.

Affiants say further that they have read the Specification; the Remarks in Amendment "A", filed May 11, 1942, in Amendment "B" filed October 7, 1942, and in Amendment "C" filed herewith; and the Motion to Add Counts; submitted herewith; and that the facts set forth in each of said papers are true of their own knowledge and experience.

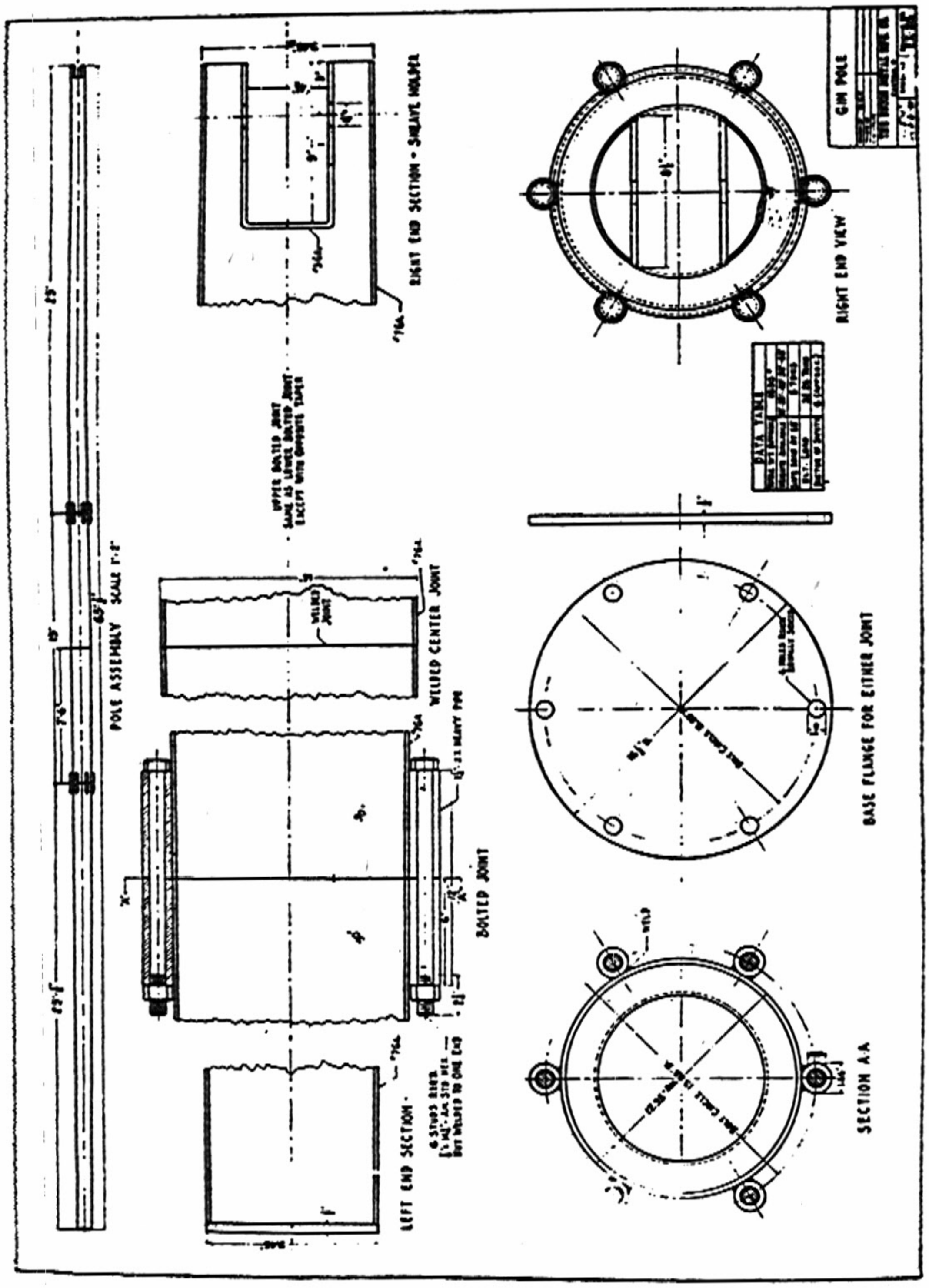
EDMUND W. RIEMENSCHNEIDER
HARRY O. RASTETTER

Sworn to and subscribed before me this 4th day of June, 1943.

RUTH M. BEANS
Notary Public in and for Stark County, Ohio.

My commission expires Jan. 5, 1944.

* * * * * * * * * *


POLE ASSEMBLY SCALE 1"=8'
RIGHT END SECTION - SHEAVE HOLDER
UPPER BOLTED JOINT SAME AS LOWER BOLTED JOINT EXCEPT WITH OPPOSITE TAPER
WELDED CENTER JOINT
BOLTED JOINT
LEFT END SECTION
RIGHT END VIEW
DATA TABLE
BASE FLANGE FOR EITHER JOINT
SECTION A-A
GIN POLE

Gin Pole Drawing No. Ex-26.

Applicant's Exhibit A.

Plaintiffs' Exhibit 12, Transcript, p. 213.

216 In the United States Patent Office.
Before the Primary Examiner.

In Division 33, Room 505.
Affidavit Under Rule 76.

Application of
Edmund W. Riemenschneider
Harry O. Rastetter, for
Radio Antenna Tower,
Filed August 4, 1941,
Serial No. 405,378.

Supplemental Affidavit of Riemenschneider and Rastetter.

State of Ohio, Stark County, ss:

Edmund W. Riemenschneider and Harry O. Rastetter, the Applicants, both being duly sworn, depose and say respectively that:

Prior to 1942 the British Admiralty and the United States Maritime Commission and Navy were using Ship Booms made of straight tubes of different sizes, secured together by telescoping the ends, as shown in a general way in Lingo patent No. 2,162,675, which were known as the Standard Pipe Booms.

As a result of tests made in 1941, of the Standard Pipe Boom and a Recommended Monotube Boom, Applicants' compression member, as illustrated in the Ozalid Print, Test Sheet, Applicants' Exhibit B, attached hereto; during the early part of the year 1942 the said British Admiralty and the United States Maritime Commission and Navy began to use Booms made of tapered tubes, one form of which is shown in the photograph, Cargo Boom, Applicants' Exhibit C, attached hereto.

That test was made at Baltimore, Maryland, at the request of the American Bureau of Shipping, and showed that although the Monotube Boom was twenty (20) per cent less in weight, it had a strength of forty-one (41) per cent more than the Standard Pipe Boom.

217 Since the adoption and use of such tapered tubular booms in the early part of 1942 and up to October 1, 1943, the British Admiralty and the United States Maritime Commission and Navy have purchased from The Union Metal Manufacturing Company, altogether, twenty-four thousand seven hundred and nine (24,709) Booms embodying the structure defined in one or the other of proposed claims 16 and 17.

In this manner, the manufacture of such Booms has substantially established a new industry of such a nature that it has assumed about eighty-five (85) percent of the capacity of said The Union Metal Manufacturing Company, as a result of which it has increased its number of employees from about three hundred fifty (350) to some twelve hundred (1200) during the past two years.

The photograph ''Boom Bay'', Applicants' Exhibit D, shows a 15 Ton Cargo Boom with fittings, and other booms in the course of manufacture at the plant of The Union Metal Manufacturing Company.

The photographs, Union Metal 15 Ton Boom under 20 Ton Test, Applicants' Exhibit E, and Union Metal 50 Ton Boom Under Test of 55 Long Tons, Applicants' Exhibit F; show Applicants' Booms as actually installed in Liberty Ships whereon they are being load tested.

EDMUND W. RIEMENSCHNEIDER
HARRY O. RASTETTER

Sworn to and subscribed before me this 1st day of October, 1943, at Canton, Ohio.

SYLVIA BORON,
Notary Public.
My Commission expires August 22, 1946

223 Amendment "D" Under Rule 109.

To the Commissioner of Patents:

Following and in accordance with the Decision on Motions by the Primary Examiner in Division 33, rendered October 25, 1943, in the matter of Interference No. 80,509, between Riemenschneider et al and Moorhead:

In the matter of the application of Edmund W. Riemenschneider and Harry O. Rastetter, for Radio Antenna Tower, filed August 4, 1941, Serial No. 405,378, the specification is hereby amended as follows:

By inserting the following additional claim, allowed as claim 19 in the Moorhead application, to wit:

18. An upright mast construction comprising a plurality of substantially rigid units, each unit having its maximum cross section at the middle part thereof and being of substantially uniformly reducing tapering form to the two ends thereof, said units being arranged vertically end to end with their small ends together and in strictly electro-conductive engagement with each other, means of universally articulated joint connection between said adjacent ends, and means axially surrounding said joint and overlapping said adjacent end portions so as to limit the extent of movement and to center the units at the joint between the same.—

This claim is entered with the understanding that along with applicant's allowed claim 7, it will be added to the Interference No. 80,509, that the Interference will be
224 redeclared o include said claims, and that new preliminary statements will be received as to the same, as provided in Rule 109.

Very respectfully submitted at Canton, Ohio, November 19, 1943.

FREASE & BISHOP
By FREASE & BISHOP
Attorneys for Applicant

HF:mk

Harry Frease, a member of the firm of Frease & Bishop, Attorneys for Parties Riemenschneider and Rastetter in the above entitled application, hereby certifies that on November 19, 1943, he mailed a copy of the above Amendment "D" Under Rule 109 to Milburn & Milburn, Union Commerce Building, Cleveland, Ohio.

HARRY FREASE

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225 Department of Commerce
United States Patent Office

Div. 33, Room 505 WB:TPT Paper No. 13

Applicant: E. W. Riemenschneider and
H. O. Rastetter
Ser. No. 405,378
Filed August 4, 1941
For Radio Antenna Tower

Pursuant to the decision of October 25, 1943, Interference No. 80,509 is hereby redeclared to include the following counts:

Count 3: An upright mast construction comprising a plurality of substantially rigid units, each unit having its maximum cross section at the middle part thereof and being of substantially uniformly reducing tapering form to the two ends thereof, said units being arranged vertically end to end with their small ends together and in strictly electroconductive engagement with each other, means of universally articulated joint connection between said adjacent ends, and means axially surrounding said joint and overlapping said adjacent end portions so as to limit the extent of movement and to center the units at the joint between the same.

Count 4: An articulated radio antenna tower including a plurality of tubular compression members supported end to end upon one another, means providing flexible joints between said members, each of said members comprising a central cylindrical portion and two elongated frusto-conical tubes having their large ends joined in abutment with the ends of said cylindrical portion, and guy wires attached under tension to the upper end of each said member.

The preliminary statement required by Rule 110 as to the added counts only should be filed on or before Jan. 17 1944.

The parties remain the same.

The relation of the added counts to the claims of the respective parties is as follows:

Count	Moorhead	Riemenschneider et al
3	19	18
4	23	7

J. S. HULL,
Examiner.

* * * * * * * * * *

Excerpts from Plaintiffs' Exhibit No. 2.

239 In the United States Patent Office.
Before the Examiner of Interferences.

Motion Under Rule 109.
Interference No. 80,509.

Riemenschneider and Rastetter
v.
Moorhead

Motion to Add Counts.

Now come Edmund W. Riemenschneider and Harry O. Rastetter, parties in the above entitled Interference, by Frease & Bishop their attorneys of record, and respectfully move the Honorable Examiner of Interferences for leave to Amend their Application, Serial No. 405,378, for Radio Antenna Tower, involved in said Interference, as per Amendment "C" under Rule 109 with the supporting Affidavit of said Riemenschneider and Rastetter, submitted herewith; and respectfully request that this Motion be set for hearing before the Primary Examiner; that Claims 16 and 17 as amended, pending in such Application, be allowed, added to and made a part of said Interference, the same being as follows:

"16. A compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantial axial alignment throughout their length with their large ends joined in abutment, and means at one end of said member for receiving and transmitting compressive forces longitudinally through said member.

"17. A compression member having equal strength in all lateral directions comprising a central cylindrical tube and two frusto-conical tubes in substantial axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at one end of said member for receiving and transmitting compressive forces longitudinally through said member."

which claims are believed by said Riemenschneider and Rastetter to be patentable, and in their opinion,
240 should be made the basis of Interference between
themselves and James W. Moorhead, the other party in said Interference, because of the substantial identity of the disclosure of the drawings in each of the interferring applications, and of the disclosure which is inherent, if not present, in the descriptive Specification of the Moorhead application; and that further proceedings in said Interference be suspended pending the decision of the Primary Examiner; and they say that this Motion is not interposed for purpose of delay and that it is believed to be well founded in law and in fact.

Very respectfully submitted at Canton, Ohio, on June 4, 1943.

FREASE & BISHOP

By HARRY FREASE

Attorneys for Riemenschneider
and Rastetter

PROOF OF SERVICE.

I hereby certify that copies of the foregoing Motion to Add Counts and of Amendment "C" under Rule 109 and of the Affidavit of Riemenschneider and Rastetter, submitted therewith, have been served upon Milburn & Milburn, attorneys for James W. Moorhead, by registered mail this June 4, 1943, addressed to Union Commerce Building, Cleveland, Ohio.

HARRY FREASE
Harry Frease, of
Frease & Bishop
Attorneys for Riemenschneider
and Rastetter

* * * * * * * * * *

255 In the United States Patent Office.
Before the Examiner of Interferences.

Interference No. 80,509.

RIEMENSCHNEIDER AND RASTETTER
v.
MOORHEAD

Riemenschneider's and Rastetter's Supplement to Motion to Add Counts.

Now come Edmund W. Riemenschneider and Harry O. Rastetter, parties in the above entitled Interference, by Frease & Bishop their attorneys of record, and supplement their Motion to Add Counts under Rule 109, filed on or about June 5, 1943, and say that they believe the claims should constitute a part of the issue on the question of priority; that they are patentably different from the Counts which are already in Interference as being drawn to the compression member per se; that they are patentably different from each other because Claim 16 is drawn to "elongated frusto-conical tubes", while Claim 17 includes "a central cylindrical tube and two frusto-conical tubes"; that the common subject matter disclosed by the two applications involved in this Interference is not believed to be completely defined in the two counts constituting the issue thereof; and that the proposed Claims 16 and 17 are readable upon the structures disclosed in the respective applications, as follows:

Claims Applied to Applications.

Proposed Claim 16 reads literally upon Fig. 2 of the drawings in the Riemenschneider and Rastetter Application, as described in lines 11 to 20, page 4 of the Riemenschneider and Rastetter Specification, as amended, as follows:

256 "As shown in Fig. 2, the novel tubular compression member 6 consists of two tapered poles 9 or frusto-conical tubes of substantially equal length, having their large ends welded or otherwise connected together in abutment with each other as indicated at 10 and being in substantial alignment throughout their length, to form an elongated tubular compression member having equal strength in all lateral directions and having its greatest strength and lateral dimension intermediate the ends and tapering gradually therefrom to the ends. As shown each compression member 6 has ears 11 secured to and projecting from its upper end portion, and said ears are adapted to be connected to the upper ends of the guy wires 7."

and also as described in lines 8 to 11, in page 8 of the Riemenschneider and Rastetter Specification as amended, as follows:

"Each compression member 6b may include two tapered poles or frusto-conical tubes 9b having their large ends welded or otherwise connected together in abutment with each other, as shown, or including a central cylindrical tube as illustrated in Fig. 5; the tubular sections being in substantial axial alignment throughout their length and having equal srength in all lateral directions."

And Claim 16 also reads literally upon each one of units 1, 2 and 3 of the drawings in the Moorhead Application, as described in pages 3, 4 and 5 of the Moorhead Specification, as follows:

"That is, each unit may comprise two duplicate sections 1a and 1b, 2a and 2b, 3a and 3b which are of tapering form and which have their larger ends rigidly secured together in any suitable manner. . . . (lines 25 to 27, page 3).

"These sections may be of any suitable form of construction and cross section and are here shown in the form of tubular, uniformly tapering steel members." . . . (Lines 1 to 2, page 4).

"With my present construction, guy cables 19 are attached to each of the several units at points above the mid-length thereof . . . . In the present illustration, the guy cables are shown attached to the points of the smallest cross-section of the antenna."

Proposed Claim 17 reads literally upon Fig. 5, of the drawings in the Riemenschneider and Rastetter Application, as described in lines 5 to 8, page 5, of the Riemenschneider and Rastetter Specification, as amended, as follows:

257 "The modified form of compression member 6a shown in Fig. 5 is made up of two tapered or frusto-conical tubes 9a with a straight tubular section 9a′ welded to their large ends and forming the central portion of the compression member, the tubular sections being in substantial axial alignment throughout their length and having equal strength in all lateral directions."

And Claim 17 also reads upon each one of Units 1, 2 and 3 of Fig. 1 of the drawings of the Moorhead Application as modified in page 4 of the Moorhead Specification, as follows:

"Also, intermediate sections of substantially uniform cross section or of only slightly tapering form may be inserted between the large ends of the adjacent sections, as may be desired or required, according to specifications, or as may be dictated by mechanical necessity or expediency."

The above application of the proposed counts to the disclosure of the two Interfering Applications, which is required so that the Motion to Add Counts is in proper form, was inadvertently omitted from the Motion; and it is requested that the Motion be considered along with this Supplement thereto as being in proper form.

Very respectfully submitted at Canton, Ohio, on June 7, 1943.

FREASE & BISHOP
By HARRY FREASE
Attorneys for Riemenschneider
and Rastetter

CERTIFICATE.

I hereby certify that a copy of the foregoing Supplement to Motion to Add Counts has been served on Milburn & Milburn, attorneys for James W. Moorhead, by registered mail this June 7, 1943, addressed to Union Commerce Building, Cleveland, Ohio. I also certify that the Motion to Add Counts and this Supplement to the same were not interposed for purpose of delay and that they are believed to be well founded in law and in fact.

HARRY FREASE
Harry Frease, of
Frease & Bishop
Attorneys for Riemenschneider

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262 In the United States Patent Office.
Before the Primary Examiner.

Interference No. 80,509.

Hearing in Room 211.
October 14, 1943.

REIMENSCHNEIDER AND RASTETTER,
v.
MOORHEAD

Brief for Riemenschneider and Rastetter on Motions to Add Counts.

Riemenschneider and Rastetter have no objection to the three claims proposed by Moorhead, the same being Moorhead's allowed claim 19, Riemenschneider and Rastetter's allowed claim 7, and the modification of Count 1 of the issue; and join him in requesting the addition of the same to the issue of the Interference.

In the absence of any notice from Moorhead, as required by Rule 109, it is assumed that he does not oppose Riemenschneider and Rastetter's Motion to Add Counts upon any prior patent or publication, and that upon the disclosure of his application and his own Motion he is not in position to oppose their Motion on any other ground.

Under the circumtsances, the situation before the Primary Examiner is substantially the same as if both parties have requested, or in effect have stipulated, that all the proposed Counts be added to the issue of the Interference, which would justify the Examiner in granting both Motions under the Rule of Normand v. Krimmelbein, 1905 C. D. 73, where it was said by Commissioner Allen that—

263 "When the interference goes before the Examiner to determine whether the claims corresponding to original counts 4 and 5 should be included in the issue, there would seem to be no objection to the inclusion therein of a broad claim which may be agreed upon by all parties.

"If there is a broad invention common to the respective inventions, it would seem that this fact could be determined by the respective parties and the claims included in the issue, so that this interference can proceed on its merits without further delay, of which there has already been too much in this proceeding."

The present situation also responds to the rule of the second appeal in the same case, 1905 C. D. 73, wherein it was said by Commissioner Allen that—

"The only irregularities complained of in the declaration of the interference are the inclusion by the Examiner of an alleged unnecessary multiplicity of counts in the issue and the inclusion of counts which, it is contended, are not patentable.

"The question of multiplicity of counts as presented in this case is entirely one of patentability. If the various counts in the issue are separately patentable, there is no irregularity in including all of them in the interference."

In other words, if the Examiner finds Riemenschneider and Rastetter's amended claims 16 and 17, and Moorhead's proposed claim 24, to be patentable, then he is fully justified in adding all of the proposed claims to the issue, because Moorhead's proposed claims 19 and 20 have already been found to be patentable.

These principles are all the more pertinent to the present parties because the disclosure of the respective applications and particularly the drawings, in which Figs. 2 and 3 of the Moorhead drawings are substantially identical with corresponding Figures in the Gin Pole drawings attached to Riemenschneider and Rastetter's Affidavit Under Rule 76, together with the showing of their Preliminary Statement, which is open to the Examiner, all indicate that the ultimate question involved is one of originality and not of priority.

264 *Proposed Claims 16 and 17 Involve Invention.*

In any event, Riemenschneider and Rastetter's amended claims 16 and 17 are believed to be patentable for the reasons and under the authorities set forth in their Amendment "C" under Rule 109, and the facts set forth in their Affidavit Under Rule 76 submitted therewith wherein it is shown—

> "That it was the idea of so constructing a compression member which rendered it possible to develop the Radio Antenna Tower which is illustrated and described in the [Riemenschneider and Rastetter] application; and in early November 1941 said The Union Metal Manufacturing Company made Ship Booms substantially like the Gin Pole shown in said drawing, Applicants' Exhibit A, for the British Admiralty, and subsequently, said company has made and is now making such Ship Booms for the U. S. Maritime Commission Liberty Ships, and for U. S. Navy War Vessels; as a result of which said Company has received official notice that it will be awarded the Maritime 'M' for supplying such compression members."

The Supplemental Affidavit of Riemenschneider and Rastetter Under Rule 76,* shows that the reason why The Union Metal Boom was adopted for Admiralty, Maritime and Naval use was because it is twenty (20) per cent lighter and forty-one (41) per cent stronger than the booms formerly used in those services, which Booms correspond to the disclosures of the Lingo patent No. 2,162,675, the first reference relied upon by the Examiner.

This is believed to be very substantial evidence of patentable novelty.

The Supplemental Affidavit also shows that up to October 1, 1943 The Union Metal Manufacturing Company has made and sold altogether some twenty-four thousand seven hundred and nine (24,709) Booms embodying the structure defined in one or the other of proposed claims 16 and 17.

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* Submitted herewith.

This is very impressive, if not conclusive, evidence of invention, when all the world has been open to the greatest Maritime nations of the world for satisfying their needs with respect to any desired device.

265 The Supplemental Affidavit also shows that the manufacture of Applicants' Ship Booms has created a new industry, which has taken over some eighty-five (85) per cent of the capacity of The Union Metal Manufacturing Company and compelled it to increase its number of employees from about three hundred and fifty (350) to some twelve hundred (1200) during the past two years.

This is not an ordinary case of quick recognition and extensive use or commercial success, because it involves an insistent demand for a lighter boom with greater strength, to satisfy a pressing need for saving steel and handling heavier loads for embarking and disembarking war munitions and materials at ports distributed throughout the world.

Nor is it an ordinary case of the creation and expansion of a business which has resulted from sales promotion, but it is a development which has been compelled by the Maritime requirements of the greatest nations in the present war crisis.

This is evidenced by the compression member being obtained in the interior City of Canton, Ohio, and applied as a Ship Boom by the Admiralty and Navy of the two greatest maritime nations of the world and by the awarding of the Maritime "M" for supplying such compression members, which is the highest honor which can be bestowed by the United States Government.

One is reminded of the saying, usually ascribed to Emerson, that

> "If you build a better mouse trap than your neighbor, the world will make a beaten path to your door."

It is difficult to conceive a more impressive tribute to the importance and utility of the compression member per se which is the essential element of each one of the claims which have been allowed in the copending applications.

266 In an experience of some sixty years of actual contact and familiarity with innumerable discoveries and developments in useful arts, the presence of invention has never been evidenced in any more effective or conclusive manner than by the appreciation of the British Admiralty and U. S. Maritime Commission and Navy; and the very extensive use of the same in the war vessels of both countries.

No further showing of the patentable novelty of the compression member defined by proposed claims 16 and 17 should be necessary, except to point out the essential character of the same in each of the claims before the Examiner.

The Essential Element in All the Claims.

Each one of Riemenschneider and Rastetter's allowed claims is founded upon "a plurality of tubular compression members" without which any other features would not be patentable in themselves.

This is shown by the Declaration of Interference to Riemenschneider and Rastetter, Paper No. 9, which concludes by saying that

> "Claims 3, 5 and 7 will be held subject to rejection as unpatentable over the issue in the event of an award priority adverse to applicant."

Likewise, each one of Moorhead's allowed claims is founded upon "a plurality of substantially rigid [duplicate] units", which are illustrated and described as being "tubular"; which is another way of defining a "plurality of tubular compression members" as in the Counts comprising the instant issue.

This is also shown by the Declaration of Interference to Moorhead, Paper No. 11, which concludes by saying that—

> "All claims will be held subject to rejection as unpatentable over this issue in the event of an award of priority adverse to applicant."

267 In other words, there is nothing intrinsically new in the flexible joints, the surrounding sleeves, the guy wires, or the electro-conductive equipment, which gives patentable novelty to any of the claims, exception in combination with the other elements. But this is not true of the compression member, which is new in itself and is of such a character as to create a patentable character to each combination as a whole, and also in itself as a new structure which is useful in other relations.

A patent for all the claims which have been allowed without a claim or claims for the compression member in itself, would be like presenting the Shakespearean play without a Hamlet.

The fundamental character of the compression members in each one of the claims in both of the pending applications, is emphasized by the fact of its unusual recognition and extensive use in the British Admiralty and in American Maritime and Naval vessels, and unless Riemenschneider and Rastetter obtain claims for the compression member itself, they will not receive that patent protection to which they are entitled under the following

Authorities.

In the historic case of Howe v. Williams (1863) 12 Fed. Case No. 6,778, wherein claim 7 of the Howe patent for

> "7. A grooved and eye-pointed needle, constructed and adapted for rapid machine sewing, substantially as described"

was sustained as valid even though prior knowledge of such a needle was suggested

> " . . . because the suggestion is of an untried invention, and is wholly unaccompanied by any explanation to show that it could be constructed and adapted for ordinary rapid machine sewing, or for sewing firm seams, as in garments."
> 12 Fed. Cas. 696

268 That is the situation with respect to the references cited by the Examiner and particularly the principal reference to Wallace, No. 2,173,525, which is "wholly unaccompanied by any explanation to show that it could be constructed and adapted for use as a Gin Pole or Ship Boom."

These old rules have recently been applied by the Board of Appeals and the Court of Customs and Patent Appeals, as follows:

In Ex parte Bartholomew (1940) 47 U. S. P. Q. 321, at page 322, it was said by Examiner in Chief Pierce that—

"The examiner takes the position that this idea broadly does not involve invention. We are unable to agree with this view in the absence of any art which in any way suggests the accomplishment of this desirable result. . . .

"While, as the examiner points out, the broad combination to which the alleged improvement is applied is old, there is nothing whatever in the art that in any way suggest the improvement."

And In re Leschinsky (1941) U. S. P. Q. 480, at page 483, it was said by Judge Lenroot that—

"It is our opinion that without a knowledge derived from appellant's disclosure, and having only the teachings of the cited references, it would not be obvious to one skilled in the art to modify the Hopfield patent to produce the structure of appellant, which is concededly new and useful."

It is elementary patent law that Riemenschneider and Rastetter are entitled to claims for the compression member itself, the fundamental importance of which is emphasized in their application as filed, by the descriptive matter which is quoted and referred to in pages 3 and 4 of the Remarks in Amendment "C", and broadly claimed in their original claims 14 and 15, as follows:

"14. A compression member comprising two elongated frusto-conical tubes having their large ends joined in abutment.

"15. A compression member comprising a central cylindrical tube and two frusto-conical tubes having their large ends joined in abutment with the ends of said cylindrical tube."

269 These original claims have been amended so as to more particularly point out the structural characteristics of the compression member; which characteristics are not present in any one of the references relied upon by the Examiner; and the status of these claims respond to the rule of Railroad Company v. Dubois (1870) 12 Wall. 47, at page 60, where it was said by Mr. Justice Strong, that—

"Undoubtedly a patentee may claim and obtain a patent for an entire combination, or process, and also for such parts of the combination or process as are new and useful, or he may claim and obtain a patent for both."

The same thought is expressed even more pertinently by Mr. Justice Brown in Deering v. Winona Harvester Works (1894) 155 US 286, at page 302, as follows:

"The invention of a needle with the eye near the point is the basis of all the sewing machines used; but the methods of operating such a needle are many, and if Howe had been obliged to make his own method a part of every claim in which the needle was an element, his patent would have been practically worthless."

Likewise, in Roberts v. H. P. Nail Co. (1892) 53 Fed. 916, it was said by Circuit Judge (the late Chief Justice) Taft that—

"In a combination patent it is permissible for the patentee, after claiming his whole machine, to claim also the combination of fewer parts than the whole, provided the combination of the parts is new, even if, taken alone, the combination will not result in any known useful product." p. 920.

"That patentees may properly protect what is really new in the combination, they must therefore be given the opportunity to select out a part or parts which are new, less than the whole working machine, and by their claims warn the public against the use of them in any other combination to accomplish the same general result as that for which they were used by the patentee in his complete machine." p. 921.

The same rule was followed in National Malleable Casting v. American Steel Foundries (1912) 182 Fed. 626, at page 639, where it was said by District Judge Rellsab that—

270 "If any of the elements are new and useful, and show invention, these may be claimed and patented. This may be done in a separate patent or by separate and distinct claims in the patent covering the combination even though such parts are without utility, save in combination with the other parts of the device."

And finally, the same principles have been more recently adopted and applied in Ex parte John S. Parsons (1934) 21 U. S. P. Q. 284, at page 285, where it was said by Examiner in Chief, Thurber, that—

"It is the established practice to allow subcombination claims which do not cover all the details disclosed in an application, if the subcombination is useful and involves the exercise of invention.

"We do not consider that an applicant should be estopped from claiming such a subcombination even if he did not particularly describe its utility in the application as originally filed."

These authorities go further than is necessary to establish the present Applicants' right to the claims under consideration, because it has been shown conclusively that the compression member not only has a great usefulness outside of the particular combination in which it is disclosed; and the characteristics of the same are not only fully described but are particularly pointed out in detail in the amended claims 16 and 17.

Proper Purpose of Rule 109.

It is not necessary to go quite so far as Mr. Justice Brown did in the Deering decision quoted above, and say that unless claims 16 and 17 are added to the issue, the resulting patent would be "practically worthless"; but it is true to say that a patent without those claims would not give the inventors the protection to which they are entitled under the patent statutes.

271 It is well said in Kurowski v. Ramsey (1912) C. D. 238, at page 239, by Assistant Commissioner Tennant that—

"The purpose of Rule 109 is to permit all subject-matter common to the devices of the interference to be determined in a single interference, and if there is any question as to the sufficiency of the counts of the interference as originally declared to cover the common subject-matter it is in the interest of the parties to have the issue corrected before taking testimony."

And to the same effect in Mortimer v. Thomas v. Brownson (1913) C. D. 144, at page 147, it was said by First Assistant Commissioner, Billings, that—

"The obvious purpose of Rule 109 was to enable the parties to an interference to have the issue include all patentable subject-matter common to the applications involved in the interference, and the reason for providing an appeal for an adverse decision of the Primary Examiner on a motion brought under this rule was in order that in the interference the question of the correctness of such a decision might be determined, since a final adverse decision rendered on such motion would obviously constitute a ground for refusing these claims presented in the application after the conclusion of the interference."

The right of such appeal having been withrawn by the present Rule 124; it is all the more important for the Examiner to include all patentable subject-matter in the issue of the Interference; in the interest of both applicants and to simplify further proceedings in the Patent Office or perchance in the Courts.

In Conclusion.

It is not necessary at this time to speculate as to the position of the parties in subsequent proceedings if the Examiner shall deny the pending Motions to Add Counts; because the rule of estoppel does not seem to be the same in the Patent Office Tribunals and in the Courts, which is another reason for requesting a liberal reconsideration of the final rejection of the claims 16 and 17 before the last amendment, and a granting of the pending Motion to add those claims to the Issue in Interference.

272 In conclusion it is submitted that the proposed claims 16 and 17 of Riemenschneider and Rastetter should be allowed, and added to the issue in Interference.

Very respectfully submitted at Canton, Ohio, on October 2, 1943.

FREASE & BISHOP
By HARRY FREASE
Attorneys for Riemenschneider
and Rastetter.

PROOF OF SERVICE.

I hereby certify that copies of the foregoing Brief for Riemenschneider and Rastetter on Motions to Add Counts, and the Supplemental Affidavit of Riemenschneider and Rastetter Under Rule 76, submitted therewith, have been served upon Milburn & Milburn, attorneys for James W. Moorhead, by Registered Mail this October 2, 1943, addressed to Union Commerce Building, Cleveland, Ohio.

HARRY FREASE
of FREASE & BISHOP
Attorneys for Riemenschneider
and Rastetter.

273 Div. 33 Rm. 505 WB:TPT Paper No. 32

Department of Commerce
United States Patent Office
Washington

Address only
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All communications respecting this
application should give the serial number.
date of filing, title of invention, and
name of the applicant

Please find below a communication from the Primary Examiner of this case.

Conway P. Coe, *Commissioner of Patents.*

Interference No. 80,509

Riemenschneider et al
v.
Moorhead

Mailed Oct 25 1943

Decision on Motions

Decision on Motion to Add Counts by Party Riemenschneider et al.

Party Riemenschneider et al moves to add two counts to the interference. The counts are set forth in the motion and are the same as claims 16 and 17, finally rejected in the Riemenschneider et al file, except for the added limitation, "throughout their length."

Party Riemenschneider et al points out that his member is a compression member primarily, while reference Wallace does not show such a member. He also appears to suggest that the form of his member is novel, when considered as a compression member, solely. He also introduces affidavits to show commercial success of his member when used as a boom on a derrick, said affidavits also tending to show an advance in the art over a certain conventional type of boom.

Proposed claims 16 and 17 are, however, considered to be still unpatentable over Wallace. The phrase in the claims, "axial alignment throughout their length," is considered to be met by Wallace. This phrase is obviously intended to be broader than a limitation calling for the axis being a
straight line. Wallace's axis is not a straight line,
274 but the axes of the various sections are all aligned.
The phrase, "equal strength in all lateral directions" is met by a circular cross-section tube. Such a tube is, of course, the most common type and may obviously be substituted for that of Wallace. Claim 16 calls for the abutment of the tapered ends, thus omitting the cylindrical mid-portion of claim 17, but the presence or absence of the mid-portion is a matter of choice, as is clearly indicated by the disclosures of the interfering parties. The "means for receiving and transmitting compressive force longitudinally" is a very broad limitation which would read on the end of almost any member. In Wallace this phrase is additionally met by means 37 and 39 which may be used for the purpose specified.

The biggest argument for patentability seems to hinge on the stated use being "a compression member." Wallace, however, is entitled to make any use of his member, without hindrance. Further, incidental compression forces would naturally arise in the specific use of Wallace's member disclosed by him. Further, the forces arising from the use of a member as a compression member are principally the same forces that arise from the use Wallace shows; namely, bending forces.

A pure compression or crushing force applied at the ends of a member is uniform throughout the member. For effectively resisting such force the member would have a cross-section uniform in area and of any shape. In any

long compression member the pure compressive force
275 is not critical, but the member fails by buckling or
bending long before the limit of resistance to pure
compression is reached. In order to take care of such bending force a compression member is designed with a cross-section having a high moment of inertia, which moment is often made to vary along the length of the member. In a long compression member freely supported at the ends, the bending moment is largest in the middle so that the cross-section or moment of inertia is also often made largest at the middle.

In Wallace the structural member is obviously designed with a cross-section which varies to take care of expected bending moments. As shown, his member is obviously adaptable to use as a compression member, and anyone skilled in the art would recognize this. To adapt the member for compression use all that would be necssary would be to suitably conform the longitudinal axis to the desired use. In most cases the axis should be a straight line, but as already noted, applicant does not so limit himself, apparently wishing to cover the use of Wallace's member as a compression member, even when having the exact wavy configuration shown by the patentee.

The affidavits relating to the success of party Riemenschneider et al are interesting, but of very little direct pertinence since specific use as a boom was not suggested by the original specification and the claims are drawn to cover
any use.

276 In view of applicant's strenuous argument, it is
considered advisable to also cite the following art:

Nickles	1,941,952	Jan. 2, 1934	189-26	uxr
Gates	535,537	Mar. 12, 1895	189-39	uxr
Jenner	1,952,011	Mar. 20, 1934	189-27	xr
Kraft	1,691,818	Nov. 13, 1928	189-34G	xr
Riemenschneider	1,821,850	Sep. 1, 1931	189-23	uxr
De Vou	2,008,785	July 23, 1935	189-11	
Orr et al	2,168,269	Aug. 1, 1939	61-53	

Nickles shows the alternativeness of the presence or omission of the central section. He also shows how a compression member, specifically a boom, is designed so as to take care of bending forces. In top plan view the member of Nickles has two widely spaced supports and so is designed like a cantilever beam with a single taper. In elevation the boom of Nickles has only one support permitting free bending, and so is designed with a double taper precisely as is applicant's member.

Gates shows an example of a double tapered boom, as shown by the affidavits except that it is skeletonized.

De Vou shows a smooth tubular mast which apparently has a double taper, though the mid-portion of the mast is not disclosed.

Jenner shows a double tapered insulator 24A, 24B held under compression by bolt 25. Rings 26 are cemented to parts 24A and 24B, thus forming two separate units held together by bolts 31 and 25. It is perfectly clear that proposed claim 16 reads directly on Jenner, and that proposed claim 17 is unpatentable thereover.

277 Kraft has a good disclosure of a tubular compression member of the type shown and claimed. It is entirely obvious that the member of Kraft may be made in abutted sections in the manner fully shown by Wallace or Pfaff, of record, and Jenner or Nickles, newly cited. The tube of Kraft may or may not have external flanges or ribs according to the teachings of the compression tubes of Orr et al and De Vou.

The Riemenschneider patent is of interest in answering the question raised by the affidavits as to why the prior art did not use a double tapered pole boom. The patent shows that Riemenschneider's assignee owns broad article claims covering heavy plate metal tapered poles such as used back-to-back to make a boom, and also has a patent covering the method and apparatus for making such poles. It is understood, further, that similar British patents are extant. Thus, other boom manufacturers would be handicapped in the making of tapered sections and would tend to confine themselves to easily made cylindrical sections, whereas Riemenschneider's assignee, when given the opportunity for the business, would naturally design and make the more theoretically efficient double tapered boom.

While the above is in the nature of mere speculation on the part of the examiner, it is thought to be of enough pertinence to the general question of patentability to be added to the record. The examiner's position, however, basically is that, regardless of any affidavits showing commercial success and prior non-use, the references cited show that the proposed claims cover matter clearly within the ambit of the prior art and are not patentable.

278 The motion is denied.

* * * * * * * * * *

284 Div 33 35

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U. S. Patent Office Nov 9 1943 Division 33

In the United States Patent Office
Before the Primary Examiner

Interference No. 80,509

Riemenschneider and Rastetter,
v.
Moorhead

Request for Reconsideration of Riemenschneider and Rastetter's Motion to Add Counts and Proposed Amendment

Riemenschneider and Rastetter respectfully request the Primary Examiner to reconsider the denial of their Motion to Add Counts, because the reasons given in the decision are not adequate or sufficient to justify the denial.

The first and principal reason given in the decision is that the phrase "axial alignment throughout their length" is met by Wallace because it is "obviously intended to be broader than a limitation calling for the axis being a straight line."

That assumption is not correct. The "intention" and the only intention is to define a straight line throughout the length of the compression member. However, Riemenschneider and Rastetter would be very glad to accept the insertion of the word—straight—before the word "alignment" in both claims, if the Examiner deems such an amendment necessary to define the straight line arrangement.

In any event, the Examiner has the privilege, if not the duty, under Rule 96, to "suggest to the parties claims as are necessary to cover the common invention in substantially the same language," and he is respectfully requested to do so, as by the above amendment or otherwise, in the interest of justice to the parties by simplying further proceedings, because the parties cannot appeal from this decision. (Rule 124).

285 The next reason given by the Examiner is that "equal strength in all lateral directions" is met by a circular cross-section tube. That is no doubt true, but it is just as true that from Gates in 1895, through Brackerbohm in 1912, Gray in 1918, Kraft in 1928, Riemenschneider in 1931, Pfaff in 1932, Gerten in 1933, Jenner in 1934, De Vou in 1935, Staubitz in 1938, to Bailey, Lingo, Berndt, Orr et al and Wallace in 1939; no one, however skilled in the art ever perceived, conceived or disclosed the idea which is defined by claims 16 and 17, until it broke suddenly into the consciousness of Riemenschneider and Rastetter, who appreciated for the first time that tapered tubes could be so combined together as to improve the Standard Pipe Boom ("circular cross-section") of the Lingo patent, by increasing its strength 41% with 20% less metal.

These facts are believed to show the presence of invention even under the "flash of creative genius" rule, as distinguished from mere mechanical skill, and it is very pertinent that this perception occurred in the year 1939 while witnessing the use of the Standard Pipe Boom, in building additions to the factories of The Union Metal Manufacturing Company, some two years before the demand arose for the same in the war needs of the British Admiralty and the United States Maritime Commission and Navy.

The third reason of the Examiner, that the "means 37 and 39" of Wallace, may be "the means for receiving and transmitting compressive force longitudinally," may be true, but those means are merely small rods extending laterally between the ends of the side rails of an automobile frame and are not intended or used "for receiving or transmitting compressive force longitudinally" of the side rails, but only for connecting and staying the ends laterally, the same as the guy wires 7 in an antenna tower.

286 The "means" referred to in the claims are the "abutment plate 18" at the upper end and the "abutment plate 20" at the lower end of each compression member, which actually receive and transmit "compressive force longitudinally" and do not serve in any way for laterally staying the ends of the members, as the rods 37 and 39 in the Wallace patent and the guy wires 7 in the Antenna Tower. In other words, the "means" must be interpreted as illustrated and described in the pending applications.

This discussion, however, suggests that the proposed claims may not be complete in calling for "means at one end of said member"; and again Riemenschneider and Rastetter would be very glad to substitute—each—for "one" before the word "end", in the phrase under consideration.

The Examiner's discussion of a "compression member" is very interesting and some of it is quite true, but in developing the characteristics of a "compression member", the necessity of reconstructing the side rails of the Wallace automobile frame to constitute an effective compression member, as defined by the pending claims, is naively admitted as follows:

"To adapt the members for compression use all that would be necessary would be to suitably conform the longitudinal axis to the desired use. In most cases, the axis should be a straight line, but as already noted, applicant does not so limit himself, apparently wishing to cover the use of Wallace's member as a compression member, even when having the exact wavy configuration shown by the patentee.''

It has already been shown that the Applicants do not intend or ''wish to cover the use of'' Wallace's side rail as a compression member, which they could not do if they desired to do so; and in referring to Wallace's member as having a ''wavy configuration'' it is candidly admitted that it could not serve satisfactorily as a compression member without a complete reconstruction as explained by the Examiner.

287 Here again the Examiner's discussion suggests that the proposed claims should particularly point out that the structure sought to be defined is a longitudinal compression member; and to expressly limit the claims to more clearly distinguish them from the Wallace disclosure, Riemenschneider and Rastetter would be very glad to insert the word—longitudinal—before the word ''compression'' in line one of each claim.

The Additional References

None of the seven additional references cited by the Examiner add anything to the references already of record, excepting possibly the Jenner Patent No. 1,952,011 and the De Vou patent No. 2,008,785.

The Jenner Patent

It would be stretching the normal meaning of the English language to consider the ''double tapered insulator 24a'' of the Jenner patent as the ''two elongated frusto-conical tubes'' in the pending claims; because the Jenner castings are too short to be properly called either an elongated cigar-shaped pipe or a gin pole, as tubes and pipes are defined in the dictionaries, and as the compression member is described in the original specification and in the pending claims.

The De Vou Patent

The De Vou patent does not disclose the "two elongated frusto-conical tubes" of the pending claims, for the same reason that the Johnson patent No. 1,716,962 was held to be invalid for want of a sufficient disclosure in Muncie Gear Co. v. Outboard Co., 315 U. S. 759, as follows:

> "No cross section of this housing was drawn or indicated, and for all that appears from the drawing it might have been circular, triangular or rectangular." (Page 716)

288 The same deficiency exists in the De Vou patent, wherein the base which is not designated and the "foot-block 4" both appear, from the heavy right hand shade lines, to be square, or perchance rectangular; and the "hollow fabricated steel mast 1" is obviously rectangular in cross section, and might well be greater in lateral width than in lateral depth, because the load carried by the Boom 3 is always at the same side or edge of the mast.

Moreover, the presence of the pulleys 10 in the base and the angle bars for the table on the sides of the foot-block 4, indicate that both the base and the foot-block are square or rectangular.

Likewise, there is nothing to show whether the "boom 3" of the De Vou patent is made of wood or metal, or whether it is solid or hollow; and the heavy shade lines would indicate that the Boom is square or rectangular.

And again, there is absolutely no disclosure on the subject in the descriptive specifications of the De Vou patent, and the same reason why the Johnson patent was found to be invalid by the Supreme Court is emphasized in the drawing of the De Vou patent, which suggests very strongly that the mast is either square or rectangular.

The Riemenschneider Patent

The speculation of the Examiner that the existence of the Riemenschneider patent for a tapered tubular pole would handicap other Boom manufacturers in the making of tapered sections is the first time within our knowledge where it is suggested that the inventor of a new and useful combination of elements should be punished because he had invented and obtained a patent for one of the elements.

289 In any event, there is nothing to show that such elements are not readily obtainable from The Union Metal Manufacturing Company in the specific form of the Riemenschneider pole, or in some other available form from some other source.

And finally, the Examiner candidly admits that his suggestions on this subject are "in the nature of mere speculation," and it is interesting to note that long ago it was said by Mr. Chief Justice Marshall in Fletcher v. Pack, 6 Cranch 87, at page 147, that

> "It is our duty to decide on rights, but not on the speculation of parties."

In Conclusion

The decision of the Examiner seems to be based on the idea that the Applicants are seeking to obtain broader protection than their disclosure deserves; and for the purpose of limiting the claims to meet the views of the Examiner, Riemenschneider and Rastetter propose the following claims, containing the amendments indicated above, for the further consideration and suggestion of the Examiner, to wit:

16. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantially straight axial alignment throughout their length with their large ends joined in abutment, and means at each end of said member for

receiving and transmitting compressive forces longitudinally through said member.

17. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

Riemenschneider and Rastetter would gladly receive and adopt any further reasonable suggestions which the Examiner may see fit to make in the premises under Rule 96; and with that in view they respectfully request that the decision of Riemenschneider and Rastetter's Motion to Add Counts be reconsidered and granted.

290 The Attorneys for Riemenschneider and Rastetter wish to say that, in their judgment, this Request is well founded in both fact and law and is therefore well justified and is not brought for the purpose of delay but is urged in all good faith for the purpose of simplifying and facilitating further proceedings.

FREASE & BISHOP,

By HARRY FREASE,
Attorneys for Riemenschneider and Rastetter.

Canton, Ohio
November 5, 1943

Harry Frease, a member of the firm of Frease & Bishop, Attorneys for Parties Riemenschneider and Rastetter in the above-entitled Interference, hereby certifies that on November 5, 1943 he mailed a copy of the above Request for Reconsideration to Milburn & Milburn, Union Commerce Building, Cleveland, Ohio.

HARRY FREASE.

291 Filed Nov. 15, 1943

Div. 33 Rm. 505 WB:TPT Paper No. 36

Department of Commerce
United States Patent Office
Richmond, Va.

Address only
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All communications respecting this
application should give the Serial number,
date of filing, title of invention, and
name of the applicant

(Copies to Attys.)

Please find below a communication from the Primary Examiner of Div. 33 in this case.

Conway P. Coe
Commissioner of Patents.

11/27/43 LFK to P. E. for Indec.

Interference No. 80,509

RIEMENSCHNEIDER, ET AL.,

v.

MOORHEAD

Decision of Reconsideration of the Decision on Motions

Both parties request reconsideration of the Examiner's decision on the motions. Both parties also submit amended substitute proposed counts for the consideration of the Examiner.

The request of Party Riemenschneider et al has been carefully considered. The proposed substitute counts would avoid the reference Wallace in terms, but aside from this, are thought to be just as unpatentable as the proposed counts treated in the original decision, for the same reasons.

The Examiner is of the opinion that any claim, however phrased, to the subject matter of the proposed counts is not patentable.

The motion of Party Riemenschneider et al to add counts stands denied.

* * * * * * * * * *

292 In the original decision on motions Party Riemenschneider et al was given thirty days in which to make proposed count numbered 19 in Party Moorhead's motion. That period of time is considered to be still running from the date of the original decision.

J. S. HULL,
Examiner, Div. 33.

W.B.

* * * * * * * * * *

Excerpts from Plaintiffs' Exhibit No. 3.

324

Specification

To All Whom It May Concern:

Be it known that we, Edmund W. Riemenschneider and Harry O. Rastetter, citizens of the United States, residing at Canton, in the County of Stark and State of Ohio, have invented a new and useful Compression Member for Radio Antenna Tower and the Like, of which the following is a specification.

An object of the present invention is to provide a novel compression member having maximum compressive strength, with a minimum of weight, which is attained by making such a member in the form of a thin elongated tube having its greatest lateral dimension centrally of its ends and being gradually tapered from said central portion to the ends. This application is a division of our pending application filed August 4, 1941, Serial No. 405,378, for Radio Antenna Tower.

Referring to the drawings in which preferred embodiments of the invention are shown by way of example,

Figure 1 is a fragmentary elevation of one form of improved radio tower support on an insulator base;

Fig. 2 is an enlarged detached view of one of the novel compression members, with parts broken away;

Fig. 3 is an enlarged fragmentary sectional view showing the flexible joint connecting two of the improved compression members;

Fig. 4 is an enlarged fragmentary view of a suitable insulator base supporting the tower;

Fig. 5 is a view similar to Fig. 2 of a modified form of the improved compression member;

Fig. 6 is a view similar to Fig. 1, showing a tower comprising the novel compression members with rigid joints there between; and

Fig. 7 is an enlarged fragmentary sectional view of one of the rigid joints in the tower of Fig. 6.

325 Similar numerals refer to similar parts throughout the several views of the drawings.

As shown in Fig. 1 the improved antenna tower is made up of a plurality of tubular compression members indicated generally at 6 and connected at their ends to provide an articulated tower of great height and very narrow girth. As shown guy wires 7 are connected to the upper end of each compression member 6 and suitably anhcored in the ground, as indicated at 8.

The ideal shape and design for the compression member is one in which the greatest strength is at the center, and which tapers gradually from the center to the ends.

Such a shape or design may be termed an elongated cigar-like shape and gives maximum compressive strength for minimum weight of material, and is particularly desirable in a tower structure because it acts like a beam in resisting wind loads. Moreover, the long tapered shape such as shown in Figs. 1 and 2 provides very little resistance to winds from any direction, thereby decreasing the effective wind load on the tower.

As shown in Fig. 2, the novel tubular compression member 6 consists of two tapered poles 9 or frusto-conical tubes of substantially equal length, having their large ends welded or otherwise connected together in abutment with each other as indicated at 10, and being in substantial alignment throughout their length to form an elongated tubular compression member having equal strength in all lateral directions and having its greatest strength and lateral dimension intermediate the ends and tapering gradually therefrom to the ends. As shown each compression member 6 has ears 11 secured to and projecting from its upper end portion, and said ears are adapted to be connected to the upper ends of the guy wires 7.

326 Preferably, the tapered poles 9 are approximately forty to fifty feet long, and when welded together make the compression members 6, eighty to one hundred feet long. Thus a radio tower constructed according to the present invention may consist of one, two, three or more of the members 6 depending upon the tower height necessary for the broadcasting frequency used.

The outside diamenter of the tapered poles 9 preferably varies from about five inches at the small end to eighteen inches at the large end, so that when two poles 9 are welded together as shown in Fig. 2 to make a compression member 6, the largest lateral dimension of the member is at its central portion and tapers gradually therefrom to the ends, making a compression member approaching the elongated cigar-shape characteristic of an ideal compression member.

The modified form of compression member 6a shown in Fig. 5 is made up of two tapered or frusto-conical tubes 9a with a straight tubular section 9a′ welded to their large ends and forming the central portion of the compression member, the tubular sections being in substantial axial alignment throughout their length, and having equal strength in all lateral directions. The diameter of the straight section 9a′ is equal to the diameter of the large ends of tapered tubes 9a, so that member 6a approaches the elongated cigar-shape which is characteristic of an ideal compression member, and offers little wind resistance. The length of said central section 9a′ may be about ¼ to ½ of the total length of member 6a.

The gauge of the tubular members 6 or 6a varies considerably according to the height of the tower. Thus the member 6 at the bottom of the tower should be of heavier gauge than the one at the top because of the greater compression load on the bottom member. For example, where the tower height requires several members, say four
327 members, the bottom one may be 0 gauge or 5/16
inches in thickness, the next higher one may be 3 gauge or ¼ inches, the next higher member 7 gauge or 3/16 inches, and the top member may be 11 gauge or ⅛ inches. In some cases the bottom one or two members may be made of two plies of metal, as for instance two plies of 7 gauge or two plies of 11 gauge.

As shown in Figs. 1 and 4 the bottom compression member 6 is supported on an insulator base 12 which is of well-known construction and forms no part of the present invention. Such a base is used where the tower itself acts as the antenna, and is not necessary where the tower is merely a support for the antenna.

As best shown in Fig. 4 the base 12 is anchored by anchor bolts 13 imbedded in a concrete foundation 14, and the lower end of the bottom compression member 6 has welded thereon a base plate 15 braced by gusset plates 15′ welded to the pole 9, and the base plate 15 is securely bolted to the top of base 12 by bolts 16.

The several compression members 6 comprising the articulated tower are connected together at their ends preferably by means of flexible joints indicated generally at 17 and shown in detail in Fig. 3. The upper end of each member 6 preferably has welded thereon an abutment plate 18 the upper abutment surface 19 of which is convex or crowned as shown. The lower end of the member 6 connected thereto and resting thereon has an abutment plate

20 secured to its bottom end and having a flat surface abutting the convex surface 19.

A sleeve 21 is preferably welded at its upper end near the bottom end of the upper member 6 at the joint and depends downwardly therefrom to encircle the upper end of the lower member 6. The sleeve 21 may be welded also to the plate 20 by plug welds shown at 22 at intervals around the sleeve, and the diameter of plate 20 is somewhat greater than the diameter of plate 18 in order to provide
328 a clearance between the sleeve and the plate 18 so
that a certain amount of flexibility is had at the joint. Thus as the tower is erected, if one of the members 6 is slightly out of alignment, the convex surface 19 can rock laterally on the bottom of plate 20 to take care of the misalignment without affecting the alignment of other compression members in the tower.

Under certain conditions it may be desirable to provide an improved radio antenna tower embodying the novel compression members connected together end to end by means of rigid joints. In Fig. 6, the improved antenna tower is made up of a plurality of compression members 6b with guy wires 7b connected to the upper end of each compression member 6b and suitably anchored in the ground, as indicated at 8b.

Each compression member 6b may include two tapered poles or frusto-conical tubes 9b having their large ends welded or otherwise connected together in abutment with each other, as shown, or including a central cylindrical tube as illustrated in Fig. 5; the tubular sections being in substantial axial alignment throughout their length and having equal strength in all lateral directions.

As shown in Fig. 7, the rigid joints between members 6b may include an abutment ring 26b welded on the upper end of the lower member 6b, and a similar abutment ring 27b welded on the lower end of the upper member 6b. The rings 26b and 27b are provided with registering bolt holes through which bolts 28b are inserted for clamping the rings together in abutment and rigidly joining the members 6b together.

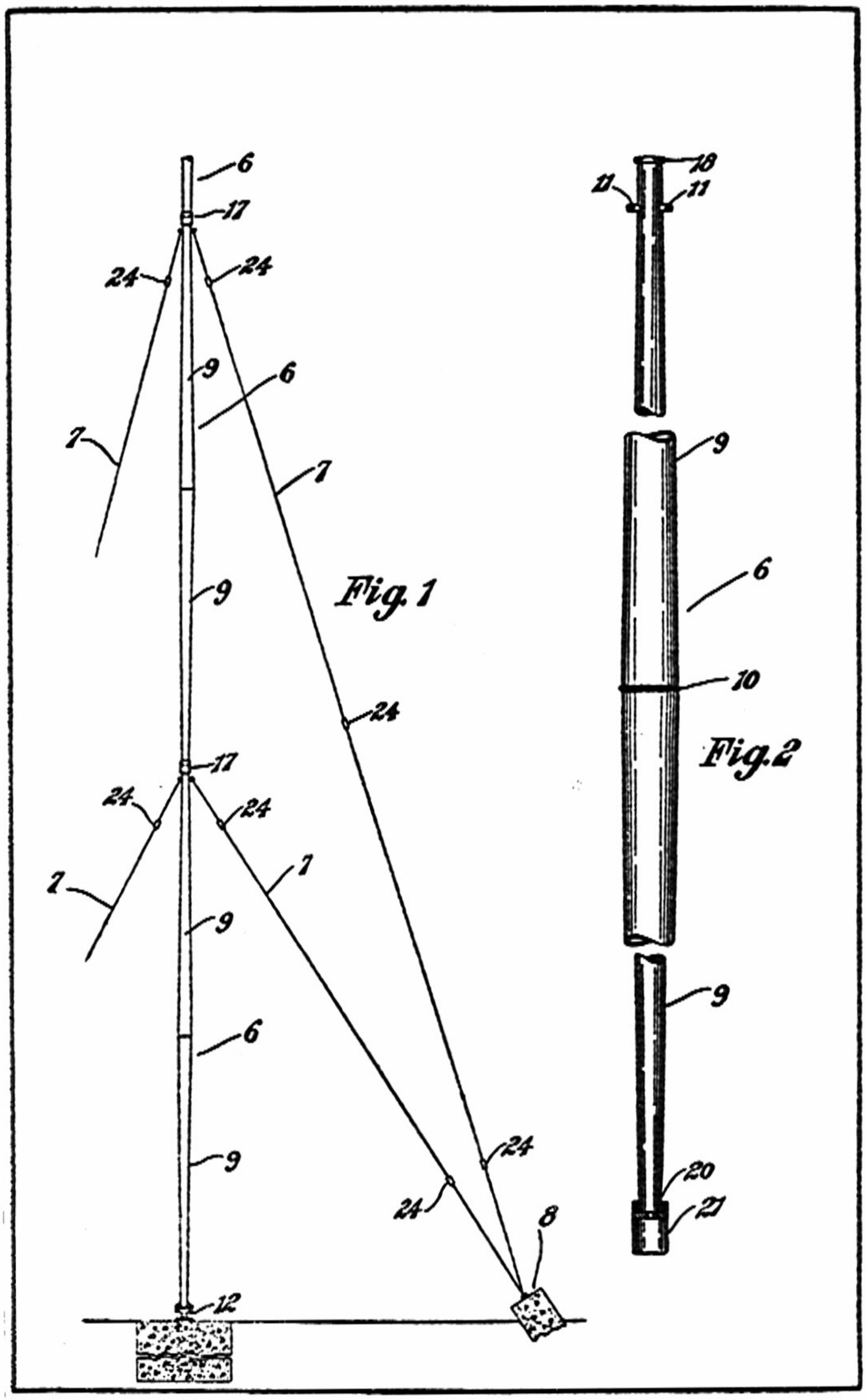
The present antenna tower in its several embodiments consists entirely of novel compression members having maximum strength with a minimum of weight, and having a contour which offers extremely low wind resistance.

329 We Claim:

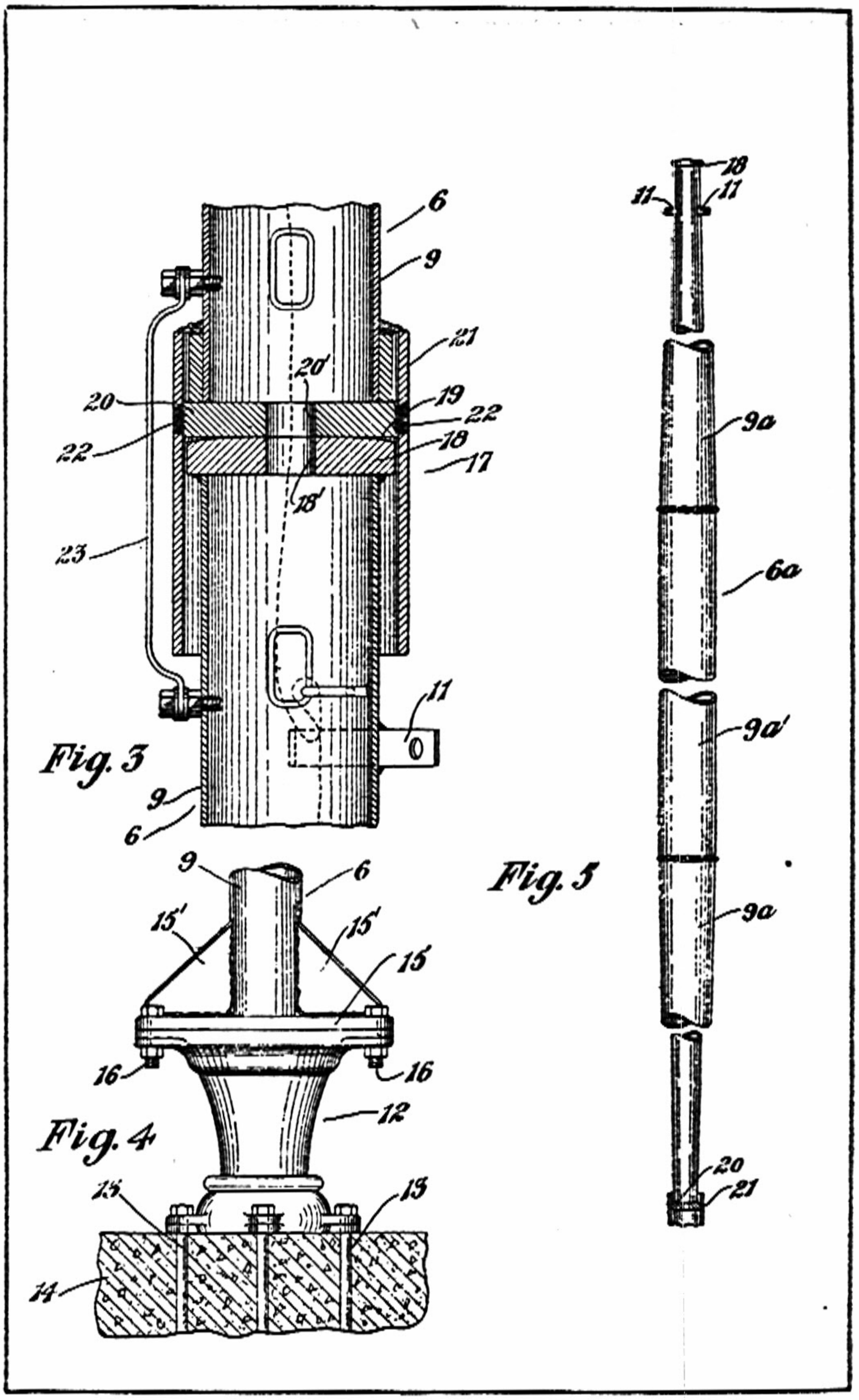
1. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantially straight axial alignment throughout their length with their large ends joined in abutment, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

• • • • • • • • • •

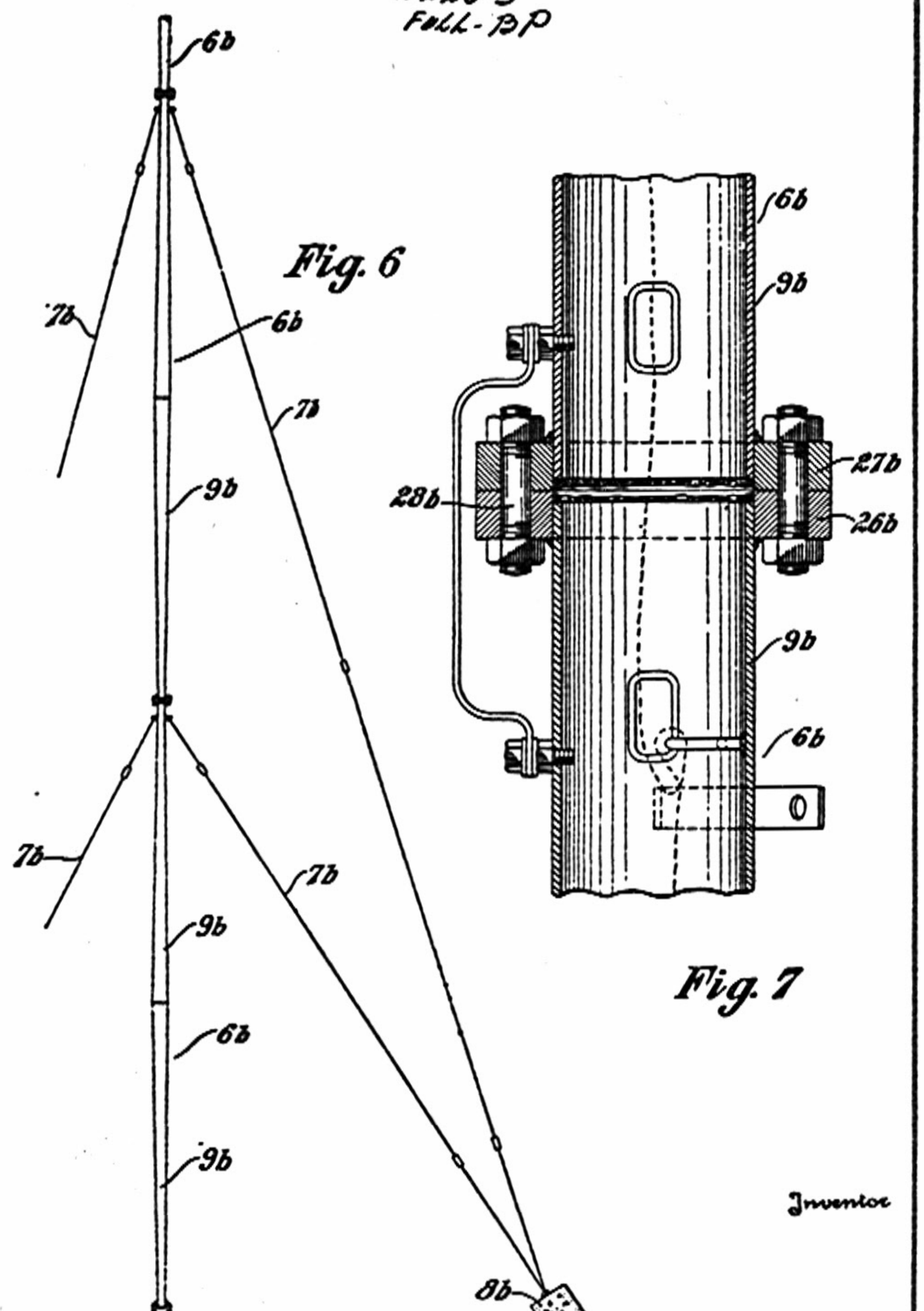


Application Drawing, Sheet 1.



Application Drawing, Sheet 2.

2220-3
Fell-BP



Inventor

By

Application Drawing, Sheet 3.

334 Mail Division Mar. 7, 1944 U. S. Patent Office

Authorities and Affidavit

To the Commissioner of Patents:

In the matter of the Application of Edmund W. Riemenschneider and Harry O. Rastetter for Compression Member for Radio Antenna Tower, Filed December 10, 1943, Serial No. 513,730:

Pending First Office Action in Division 33, Room 505, the attention of the Examiner is called to the decision of the Supreme Court in The Goodyear Tire and Rubber Company, Inc. v. Ray-O-Vac Company, 60 U.S.P.Q. 386, which was rendered on February 28, 1944, since this application was filed, and which has particular pertinence to the presence of invention in the present application.

At page 388, it is said by Mr. Justice Roberts that:—

''Viewed after the event, the means Anthony adopted seem simple and such as should have been obvious to those who worked in the field, but this is not enough to negative invention.

''Loom Company v. Higgins, 105 U. S. 580, 589, 591;
''The Barbed Wire Patent, 143 U. S. 275, 277, 283;
''Krementz v. S. Cottle Co., 148 U. S. 556;
''Expanded Metal Co. v. Bradford, 214 U. S. 366, 381;
''Diamond Rubber Co. v. Consol. Tire Co., 220 U. S. 428, 434-435.

''During a period of half a century, in which the use of flash light batteries increased enormously, and the manufacturers of flash light cells were conscious of the defects in them, no one devised a method of curing such defects.

''Once the method was discovered it commended itself to the public as evidenced by marked commercial success.

''These factors were entitled to weight in determining whether the improvement amounted to invention and should, in a close case, tip the scales in favor of patentability.

"Smith v. Goodyear Dental Vulcanite Co., 93 U. S. 486, 495-6;
"Magowan v. New York Belting Co., 141 U. S. 333, 343;
"Topliff v. Topliff, 145 U. S. 156, 163, 164;
"Keystone Mfg. Co. v. Adams, 151 U. S. 139, 143;
"Potts v. Creager, 155 U. S. 597, 609;
"Minerals Separation, Ltd. v. Hyde, 242 U. S. 261, 270;
"Smith v. Snow, 294 U. S. 1, 7, 14;
"Paramount Corp. v. Tri-Ergon Corp., 294 U. S. 464, 474;

U. S. Patent Office Mar. 8, 1944 Division 33

335 In view of that decision, your attention is recalled to the Affidavits of Edmund W. Riemenschneider and Harry O. Rastetter, which were submitted in connection with their Petition to Add Counts in Interference No. 80,509, q. v., which was denied on October 25, 1943, and reconsideration was refused on November 15, 1943. Those Affidavits are combined in the Affidavit Under Rule 76 which is attached hereto, as part of the record in this Divisional Application.

No argument is necessary to show that the facts set forth in the attached Affidavit are sufficient to "tip the scales in favor of patentability" with respect to the subject-matter of the two claims pending in this application.

Very respectfully submitted,

FREASE & BISHOP

By HARRY FREASE,
Attorneys for the Applicants,
Riemenschneider and Rastetter.

Canton, Ohio
March 6, 1944

336 Mail Division Mar - 7 1944 U. S. Patent Office

In the United States Patent Office

Before the Primary Examiner

Pending First Action

In Division 33, Room 505

Affidavit Under Rule 76

Application of Edmund W. Riemenschneider, and Harry O. Rastetter, for Compression Member for Radio Antenna Tower and the Like,

Filed December 10, 1943,

Serial No. 513,730.

Affidavit of Edmund W. Riemenschneider and Harry O. Rastetter

State of Ohio, Stark County, ss:

Edmund W. Riemenschneider and Harry O. Rastetter, the Applicants, both being duly sworn, depose and say respectively that:

Edmund W. Riemenschneider is 56 years of age, was graduated as a Mechanical Engineer in the Case School of Applied Science in 1909; was Engineer and Assistant Master Mechanic of The American Steel & Wire Company, Blast Furnaces and Steel Mills, for some six years thereafter; was General Superintendent of The Cleveland Metal Products Company, makers of Perfection Stoves and Kitchen Utensils, at Cleveland, Ohio, for some three years thereafter; was General Superintendent of Parrish & Bingham, makers of Automobile and Truck Frames, at Cleveland, Ohio, for some five years thereafter; was Factory Manager of The Vital Manufacturing Company, makers of Vacuum Cleaners, Spark Plugs, Grease Guns, etc., at Cleveland, Ohio, for one year thereafter; and in January 1926 became Development Engineer of The Union Metal Manufacturing Company, and for some five years has been Chief Engineer of said company:

337 Harry O. Rastetter is 57 years of age, attended Ohio Wesleyan University at Delaware, Ohio, from 1908 to 1910; on September 1, 1910 became a Drafting Engineer for The Union Metal Manufacturing Company at Canton, Ohio, and for some twenty-five years last past has been the Chief Designing Engineer of said company, engaged in the manufacture of Tubular Poles, Piles and Ship Booms.

The affiants say further that during the year 1939 while witnessing the methods used by structural contractors in erecting steel work in building additions to the factories of The Union Metal Manufacturing Company by use of built-up structural booms, they developed the idea of making such a boom of tapered tube members with the larger ends welded together, which could be cut into sections to be bolted together, for convenient handling and carrying to and from the place of use; which idea was embodied in a drawing of a Gin Pole, a photostatic copy of which is attached hereto as Applicants' Exhibit A, which drawing was made by W. K. Riemenschneider under the direction of said E. W. Riemenschneider under the direction of said E. W. Riemenschneider, was completed on February 8, 1939, some months before the idea of using such a compression member in the construction of a Radio Tower was conceived or developed.

That it was the idea of so constructing a compression member which rendered it possible to develop the Radio Antenna Tower which is illustrated and described in the above identified application; and in early November 1941 said The Union Metal Manufacturing Company made Ship Booms substantially like the Gin Pole shown in said drawing, Applicants' Exhibit A, for the British Admiralty, and subsequently, said company has made and is now making such Ship Booms for the U. S. Maritime Commission Liberty Ships, and for U. S. Navy War Vessels; as a result of which said Company has received official notice that it will be awarded the Maritime "M" for supplying such compression members, which has since been awarded on July 16, 1943.

338 That the gin poles or tapered tubular booms shown in said drawings are 100% compression members when in vertical position, and are not beams in any proper sense of the word; and when used as an Antenna Tower or part thereof they are only incidentally subject to the lateral impact of the wind as a force tending to deflect them.

Prior to 1942 the British Admiralty and the United States Maritime Commission and Navy were using Ship Booms made of straight tubes of different sizes, secured together by telescoping the ends, as shown in a general way in Lingo patent No. 2,162,675, which were known as the Standard Pipe Booms.

As a result of tests made in 1941, of the Standard Pipe Boom and a Recommended Monotube Boom, Applicants' compression member, as illustrated in the Ozalid Print, Test Sheet, Applicants' Exhibit B, attached hereto; during the early part of the year 1942 the said British Admiralty and the United States Maritime Commission and Navy began to use Booms made of tapered tubes, one form of which is shown in the photograph, Cargo Boom, Applicants' Exhibit C, attached hereto.

That test was made at Baltimore, Maryland, at the request of the American Bureau of Shipping, and showed that although the Monotube Boom was twenty (20) per cent less in weight, it had a strength of forty-one (41) per cent more than the Standard Pipe Boom.

Since the adoption and use of such tapered tubular booms in the early part of 1942 and up to October 1, 1943, the British Admiralty and the United States Maritime Commission and Navy have purchased from The Union Metal Manufacturing Company, altogether, twenty-four thousand seven hundred and nine (24,709) Booms embodying the structure defined in one or the other of proposed claims 16 and 17.

339 In this manner, the manufacture of such Booms has substantially established a new industry of such a na-

ture that it has assumed about eighty-five (85) per cent of the capacity of said The Union Metal Manufacturing Company, as a result of which it has increased its number of employees from about three hundred fifty (350) to some twelve hundred (1200) during the past two years.

The photograph "Boom Bay", Applicants' Exhibit D, shows a 15 Ton Cargo Boom with fittings, and other booms in the course of manufacture at the plant of The Union Metal Manufacturing Company.

The photographs, Union Metal 15 Ton Boom under 20 Ton Test, Applicants' Exhibit E, and Union Metal 50 Ton Boom Under Test of 55 Long Tons, Applicants' Exhibit F; shows Applicants' Booms as actually installed in Liberty Ships, whereon they are being load tested.

EDMUND W. RIEMENSCHNEIDER
HARRY O. RASTETTER

Sworn to and subscribed before me this 6th day of March, 1944, at Canton, Ohio.

SYLVIA BORON
Notary Public

My Commission Expires August 22, 1946.

[Applicant's Exhibit A will be found on page 70; Exhibits B, E and F on pages 58, 56 and 57 respectively, of the Brief for Appellants, and Exhibits C and D will be found in Plaintiffs' Exhibit 3 at pages 342 and 343 of Transcript.]

* * * * * * * * * *

346 Patent Office Mar 24 1944 Mailed

Div. 33 Room 505 WB:GBC Paper No. 4

All communications respecting this application should give the serial number, date of filing, and name of the applicant

Address only
The Commissioner of Patents,
and not any official by name

Department of Commerce
United States Patent Office
Richmond 20, Virginia

Please find below a communication from the Examiner in charge of this application.

CONWAY P. COE
Commissioner of Patents.

Applicant: Edmund W. Riemenschneider et al

Ser. No. 513,730
Filed Dec. 10, 1943

For Compression Member for Radio Antenna Tower and The Like

Frease & Bishop,
Harter Bank Bldg.,
Canton, Ohio.

This application has been examined.

References made of record:—

Pfaff	1,877,583	Sept. 13, 1932	189-26 X
Wallace	2,173,525	Sept. 19, 1939	280-106
Nickles	1,941,952	Jan. 2, 1934	189-26 ux
Gates	535,537	Mar. 12, 1895	189-39 “
Jenner	1,952,011	Mar. 20, 1934	189-27 “
Kraft	1,691,818	Nov. 13, 1928	189-34G “
Riemenschneider	1,821,850	Sept. 1, 1931	189-23 “
DeVou	2,008,785	July 23, 1935	189-11
Orr et al	2,168,269	Aug. 1, 1939	61-53

The claims are rejected on Wallace in view of the other cited patents showing straight, double tapered sections. The presence or omission of the central section is a matter of choice as shown by Nickles.

The claims are also repected on Kraft in view of Wallace or Pfaff and Jenner or Nickles. The member of Kraft may obviously be made up of butt welded sections and the joint may obviously be disposed at the mid-point. Flanges may or may not be present as shown by Orr and De Vou.

The claims are also rejected on Kraft in view of Riemenschneider and Jenner. The poles of Riemenschneider may obviously be secured back to back as taught by Jenner to make a member as in Kraft.

The claims are also rejected on Jenner. The frusto-cones of Jenner are considered to be elongated. They obviously may be more elongated.

In view of the art it is thought that even outstanding commercial success due to the merit of the product alone,
in a free competitive field, would not be enough to
347 produce patentability. The affidavit, filed with the
case, however, is considered to show merely that a
boom reading on the claims is a good product.

The claims are also rejected as improper under Rule 106. This rule, as interpreted, by Ex parte Wheeler 1883 C. D. 12, prohibits an applicant from claiming in a separate application any matter which could be included in the interference or is shown or described by the conflicting application.

Apparently applicant's only purpose in filing this case was to secure an early appellate determination of the patentability of the claims on their merits. The examiner agrees that under the facts of this case that is desirable.

The very claims in this case have been considered and held unpatentable in interference No. 80,509, and similar claims have been finally rejected in the parent case. Accordingly, applicant may take this action as final if he so desires.

J S HULL
Examiner.

W. B.

348 Mail Division Mar 29 1944 U. S. Patent Office

Department of Commerce

In The United States Patent Office

Application of Edmund W. Riemenschneider, and Harry O. Rastetter, for Compression Member for Radio Antenna Tower and the Like, Filed December 10, 1943, Serial No. 513,730.

Appeal to the Board of Appeals From Division 33 Room 505

Petition for Appeal

To The Commissioner of Patents,

Sir:

Appeal is hereby made to the Board of Appeals from the decision of the Principal Examiner in the matter of the application of Edmund W. Riemenschneider and Harry O. Rastetter, for United States Letters Patent for Compression Member for Radio Antenna Tower and the Like, filed December 10, 1943, Serial No. 513,730, in which claims 1 and 2 were rejected in the Patent Office Action of March 24, 1944.

This application is a division of applicants' copending application Serial No. 405,378 for Radio Antenna Tower, which is involved in Interference No. 80,509 now pending proofs before the Examiner of Interferences, and the present claims 1 and 2 in application Serial No. 513,730 were held unpatentable in said Interference No. 80,509 and similar claims have been finally rejected in application Serial No. 405,378.

In view of these circumstances, the Office Action of March 24, 1944 stated that the rejection could be considered as final, and accordingly this appeal is taken from the decision in said Office Action.

349 The following are the points of the decision on which the appeal is taken:

1. The Examiner erred in rejecting the claims "on Wallace in view of the other cited patents showing straight, double tapered sections" and in holding that "The presence or omission of the central section is a matter of choice as shown by Nickles."

2. The Examiner erred in rejecting the claims on Kraft in view of Wallace or Pfaff and Jenner or Nickles, in holding that "The member of Kraft may obviously be made up of butt welded sections and the joint may obviously be disposed at the mid-point", and in holding that "Flanges may or may not be present as shown by Orr and De Vou."

3. The Examiner erred in rejecting the claims on Kraft in view of Riemenschneider and Jenner, and in holding that "The poles of Riemenschneider may obviously be secured back to back as taught by Jenner to make a member as in Kraft."

4. The Examiner erred in rejecting the claims on Jenner, and in holding that "The frusto-cones of Jenner are considered to be elongated", and that "They obviously may be more elongated."

5. The Examiner erred in holding that "In view of the art it is thought that even outstanding commercial success due to the merit of the product alone, in a free competitive field, would not be enough to produce patentability."

6. The Examiner erred in stating that "The affidavit, filed with the case, however, is considered to show merely that a boom reading on the claims is a good product."

7. The Examiner erred in rejecting the claims as improper under Rule 106.

8. The Examiner erred in not allowing claims 1 and 2 upon the showing of record.

350 The appeal fee of $15.00 is enclosed herewith and an oral hearing is requsted; and in view of the pendency of Interference No. 80,509, it is requested that

consideration of this appeal be made Special in order that claims 1 and 2 may be included in said Interference, if said claims are held patentable by the Board of Appeals.

Respectfully submitted at Canton, Ohio, this 28th day of March, 1944.

FREASE & BISHOP
By HARRY FREASE
HF:mk *Attorneys for Applicants-Appellants*

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351 Department of Commerce
United States Patent Office
Richmond, Va.

Before the Board of Appeals

In re application of:
Edmund W. Riemenschneider et al
Serial No. 513,730
Filed Dec. 10, 1943
For: Compression Member for Radio Antenna Tower and the Like

Examiner's Statement

This is an appeal from the rejection of claims 1 and 2 (all the claims in the case).

The rejected claims are as follows:

1. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes in substantially straight axial alignment throughout their length with their large ends joined in abutment, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the

ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

The art relied on is as follows:

Pfaff	1,877,583	Sept. 13, 1932
Wallace	2,173,525	Sept. 19, 1939
Nickles	1,941,952	Jan. 2, 1934
Gates	535,537	Mar. 12, 1895
Jenner	1,952,011	Mar. 20, 1934
Kraft	1,691,818	Nov. 13, 1928
Riemenschneider	1,821,850	Sept. 1, 1931
De Vou	2,008,785	July 23, 1935
Orr et al	2,168,269	Aug. 1, 1939

352 The case relates to a compression member, as shown in Figures 2 or 3. In Figure 2, two frusto-conical sections 9 are joined end to end to form a double tapered tube. In Figure 5, the same structure is shown with the addition of a central cylindrical section.

Substantially the same claims as here presented were urged by applicants in case No. 513,730, and by motion to add counts in Int. No. 80,509. The examiner has consistently denied patentability of these claims. The applicants' opponent in the interference can unquestionably make the claims, and has not opposed their admission to the interference.

In order to obtain a quick appellate decision on patentability applicants have filed this case and now appeal.

The examiner concedes the desirability of applicants' action in filing this case but believes, nevertheless, that it is in violation of Rule 106. This rule provides that "no claim shall be made in the application not involved in the interference broad enough to include matter claimed in the application involved therein." Ex parte Wheeler 1883 C. D. 12, construing this rule, says that an applicant may not claim in a separate application any matter which could be included in the interference, or is shown or described by the conflicting application.

In this case, the two claims under consideration, obviously can be and should be (if patentable) made a part of the interference, and they are obviously broad enough to dominate each count of the interference.

As to the merits of the claims, it should be noticed first that they are drawn broadly to a compression member, and
thus may include in their scope uses radically differ-
353 ent from the single use as part of a radio tower
which is disclosed in this application. Also, it may be noted that claim 1 is drawn to the species of Figure 2 and claim 2 to the species of Figure 5, with no generic claim. This condition has been permitted by the examiner, since it is his view that the differences between the species are trivial, and that each species is equally unpatentable.

The double tapered shape for a compression member is old and well known. Gates, Kraft and De Vou show practically the identical proportions of applicants' Figure 2 member. Nickles shows the well known expedient of inserting or omitting a central section.

The claims call for a member having "equal strength in all lateral directions" and thus theoretically would be limited to a smooth circular shape in cross-section. However, it is believed that they should not be (and were not intended to be) construed in such a narrow way, but also cover flanged tubes as in Kraft, or tubes having some openwork as in Gates. Applicants' assignee, as shown by the Riemenschneider and Orr et al patents is well aware that a corrugated or flanged tube is alternative to a smooth tube. At any rate, a smooth, continuous, walled double tapered, circular cross-section compression member is most strongly suggested by De Vou, and definitely shown by Jenner.

The big distinction over some of the references is that the single double tapered member is made up of two tapered sections joined in abutment back to back at their large ends. Now, it is notorious that long lengths of structural members may be made up by splicing short members together. Butt welded joints are commonly as strong or stronger than the

material joined, and such joints are commonly in-
354 serted wherever found convenient when it is desired
to make a long member from shorter members. In addition to all this, the specific location of applicants' joint, in a double tapered member, is exactly shown for claim 1 by Jenner, for claims 1 and 2 by Nickles, and for claim 2 by Wallace.

Applicant has objected to Wallace on the ground that he does not show a compression member. Wallace does, however, show a structural member of double tapered shape which is designed to withstand severe bending stresses, which stresses cause tension and compression stresses in the material. The shape of applicants' member is due solely to the fact that in a slender compression member an axial compressive force produces bending moments. Obviously if only a pure compression force were involved, applicant and the prior art, would not need the complication of a double tapered hollow shape, but would use a straight solid rod of any cross-sectional shape. Thus, the structural member of Wallace resists the same kind of forces as applicants' member, is in the same structural art as applicants and is fully effective as a reference.

With respect to Nickles it may be noticed that in elevation his boom has a double tapered shape, whereas in plan view it has a single taper, wide at the base. This sort of construction results from the fact that Nickles' boom is pivoted at two points 9 in plan view, when in use, so that the compressive forces on the boom, when considered in plan view, cause a disposition of bending moments as in a cantilever beam; whereas in elevational view only one pivot 9 shows up, so that in this plane, compressive forces on
the boom produce bending moments as in a simple
355 beam. This difference in shape between plan and
elevation does not affect the force of the teaching of this reference with respect to double tapered members, but only serves to illustrate how the shape of a compression member is determined by the consideration of bending moments.

In addition to the foregoing considerations, claim 1 is directly met by Jenner. This reference shows joined frusto conical tubes 24A, 24B submitted to compressive force by bolt 25. The only distinction applicants have pointed out over this reference is the word "elongated." This term is broad, and surely reads on any member having substantial length as compared to breadth. Further, it is obvious that it is wholly a matter of choice with Jenner how "elongated" his members are. As shown in Figure 4 of Jenner, the length of member 24A depends on angle B, it being desired to have force line 22B intersect force line 23 at the same point as line 22A. Thus, it is clear that the compression member of Jenner may be much more elongated, with no teaching whatever from applicants.

Claim 2, of course, is not patentable over Jenner, since a central section is an old and obvious expedient.

In an effort to show commercial success applicants have filed an affidavit under Rule 76. This affidavit shows that applicants sold a large number of double tapered booms due to the U. S. and British ship program, and that the double tapered boom is more efficient than a straight type boom shown in exhibit B, attached to the affidavit.

However, it is apparent that the straight type boom is extremely simple to manufacture and may be so much cheaper to make that it is more economical than applicants' despite its lower theoretical efficiency. Also there is no
showing that the double tapered type has replaced
356 the straight. It may be that each type is being used,
and that most pole manufacturers are working to
capacity to supply the sudden demand.

Further, it must be noted that applicants' assignee is a large manufacturer of tapered poles and piles, as shown by the Riemenschneider and Orr patents. Also, it is seen from the Riemenschneider patent that applicants' assignee has broad protection on a tapered pole of the dimensions of half a double tapered boom, and that the assignee owns method and apparatus patents. While tapered poles of these dimensions can be made by other methods, as shown by Pfaff, for example, it appears that applicants' assignee owns the most efficient method and has a large amount of machinery for performing it. Thus, other pole manufacsturers in the U. S. and Britain probably could not manufacture a double tapered pole that could compete with the straight type, while applicants could. The actual situation may well be merely, that when a large demand for double tapered booms arose it was promptly filled by the manufacturer capable of filling it.

Another point is that the affidavit deals only with booms, whereas the claims are broadly drawn to compression members. Even if it should be concluded that applicant filled a crying need in the boom industry and so should have a monopoly, there is no showing that any such need was filled in the "compression member" art. On the contrary, as shown by Jenner, for example, the precise proportions of compression members shown by applicants are a matter of choice and await only the need to be created, and a monopoly to anyone would be only a hindrance to the art.

357 In conclusion, it is thought the claims are unpatentable over Jenner; that they are squarely within the prior art as shown by the other patents, when combined in various obvious ways such as Kraft in view of Wallace (or Pfaff) and Nickles, or Kraft in view of Riemenschneider and Jenner; that they are unpatentable despite any affidavit of merit; and that the affidavit filed does not actually make out a persuasive case.

Respectfully submitted,

J. S. HULL,
Examiner,
Division 33.

358 Department of Commerce
In the United States Patent Office
Before the Board of Appeals

Application of
Edmund W. Riemenschneider
Harry O. Rastetter, for
Compression Member for Radio
Antenna Tower and the Like
Filed December 10, 1943
Serial No. 513,730

Motion to Make Special

(Or if Supervising Authority is Necessary)

Petition to the Commissioner to Make Special

Following the Examiner's Statement entered April 13, 1944, the Applicants, Edmund W. Riemenschneider and Harry O. Rastetter, by Frease & Bishop, their attorneys of record, respectfully request that the consideration, hearing and decision of the above-entitled appeal be made special so that it may be determined within the next few weeks, if possible.

Memorandum in Support of Petition.

Attention is called to the comments made in page 2 of the Examiner's Statement, as follows:

"Substantially the same claims as here presented were urged by applicants in case No. 513,730, and by motion to add counts in Int. No. 80,509. The examiner has consistently denied patentability of these claims. The applicants' opponent in the interference can unquestionably make the claims, and has not opposed their admission to the interference.

"In order to obtain a quick appellate decision on patentability applicants have filed this case and now appeal.

"The examiner concedes the desirability of applicants' action in filing this case but believes, nevertheless, that it is in violation of Rule 106. This rule provides that 'no claim shall be made in the application not involved in the interference broad enough to include matter claimed in the application involved therein.' Ex parte Wheeler 1883 C. D. 12, construing this rule, says that an applicant may not claim in a separate application any matter which could be included in the interference, or is shown or described by the conflicting application.

359 "In this case, the two claims under consideration, obviously can be and should be (if patentable) made a part of the interference, and they are obviously broad enough to dominate each count of the interference."

These comments are sufficient to justify a prompt determination of the Appeal, with the following explanation.

Under an order setting the time for taking testimony in chief for Riemenschneider et al to close on April 24, 1944, a notice was duly served on the attorneys for Moorhead for taking testimony on behalf of Riemenschneider et al on this 17th day of April, 1944.

On Saturday morning, April 15, 1944, however, in response to a telephone request by the attorneys for Moorhead, it was agreed to stipulate an extension of time to and including May 24, 1944, for taking the testimony on behalf of Riemenschneider, because Moorhead is being detained in Georgia by the illness of his wife; and such a Stipulation has been duly signed and forwarded to the Patent Office today.

Under the circumstances, for the reasons well given in the Examiner's Statement, it would be very desirable if the patentability of the claims in the pending application could be determined in time to add them to the pending Interference if they should be found to be patentable, thus avoiding the necessity of a second Interference in the premises.

Applicants are aware of the technical provisions of Rule 106; but in view of the relatively recent change in Rule 124, which prohibited an appeal from the rejection of claims in the parent application during the pendency of the interference, it is believed that, if necessary, the supervisory powers of the Commissioner should be exercised to meet the exigencies of the present situation.

Very respectfully submitted at Canton, Ohio, on this 17th day of April, 1924.

FREASE & BISHOP
Attorneys for Riemenschneider and Rastetter

HF:mk

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361 Board of Appeals May 3 1944 U. S. Patent Office

In the United States Patent Office
Before the Board of Appeals

Appeal No. 1002 From Division 33 Room 505

Application of
Edmund W. Riemenschneider and
Harry O. Rastetter, for
Compression Member for Radio Antenna Tower and the Like
Filed December 10, 1943
Serial No. 513,730

Brief for Applicants-Appellants

Before stating the case, we wish to thank the Board of Appeals for advancing the hearing, and to express our appreciation for the attitude of the Primary Examiner in conceding "the desirability of applicants' action in filing this case."

Statement of the Case

This appeal is from a rejection taken as final, dated March 24, 1944, of all the claims in the above application, comprising claims 1 and 2.

The subject matter of the claims on appeal is an elongated tube of a particular construction and adapted for use as a compression member in a radio antenna tower.

More specifically, the compression member defined in the claims on appeal is made up of two frusto-conical tubes joined in abutment at their large ends, or joined at their large ends to a straight cylindrical piece, said compression member having means at each end for receiving and transmitting compression forces through said member.

The claims on appeal read as follows:

362 1. A longitudinal compression member having equal strength in all lateral directions comprising two elongated frust-conical tubes in substantially straight axial alignments throughout their length with their large ends joined in abutment, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

In General

The compression member defined in claims 1 and 2 closely approaches an ideal shape and design in that the greatest strength is at the center, and it has a maximum compressive strength with a minimum of weight of material. Moreover, said compression member is particularly well adapted for use in a tower or like structure which is subjected to wind, because it acts like a beam in resisting wind loads and provides a minimum of resistance to winds from all directions.

A radio antenna tower or like structure may consist of one such compression member, or an articulated tower may be constructed of several such members to attain heights of several hundred feet, as often required in radio broadcasting.

The Examiner has finally rejected claims 1 and 2 on various combinations of nine different references, whereas claims described by him as "substantially the same" were rejected by him mainly on Wallace in the parent application Serial No. 405,378 from which this case is divided.

By proposing various combinations of references to build up an after-the-fact anticipation of the claims, the Examiner is conceding that no single reference is an anticipation, and indicates his lack of confidence in the anticipating effect of Wallace.

363 This type of rejection clearly shows that the Examiner has failed to properly appreciate and evaluate the novelty and utility of the structure defined in the claims on appeal, which structure although it may seem obvious now to the Examiner, was never obvious to anyone in the prior art prior to the filing of the patent application Serial No. 405,378, from which this application is divided.

The Examiner's Statement

The Examiner's Statement refers incidentally to some nine (9) prior patents, without showing that any one of them entirely anticipates the details of the structure, defined by the two rejected claims 1 and 2. By a devious course of reasoning the Examiner concludes somewhat arbitrarily that the Compression Member illustrated, described and defined by the claims in this divisional application does not involve invention, which is believed to be the only issue in this appeal.

The Final Rejection of the pending claims, in Paper No. 4, is based primarily upon the Wallace patent No. 2,173,525 for Automobile Frame; and Wallace was the principal reference cited against the corresponding claims 14 and 15 (amended as 16 and 17) in the parent application (Papers Nos. 5 and 7 therein).

A mere inspection of the Wallace drawing shows that the side rails 20 of the Automobile Frame are nothing more than beam members, without any of the structural characteristics which are illustrated, described and defined by the claims in the pending application.

These characteristics are necessary to constitute the most effective compression member as will be more fully discussed, infra.

Before discussing the prior patents relied upon by the Examiner in rejecting the pending claims, attention is called
to the Lingo patent No. 2,162,675 for a Mast for Radio
364 Broadcasting, which was cited by the Examiner
against the Antenna Tower claims, in the parent case
(Papers Nos. 3 and 5 therein); but for some unexplained reason the Lingo patent was not applied either there or here to the compression member claims.

We call special attention to the Lingo patent because it is the only prior patent known to Applicants, which can be fairly compared to pending claims on the question of presence of invention.

Extensive Use as Evidence of Invention

The effective recognition and extensive use of Applicants' improved compression member is believed to bring the present case squarely within the rule of Goodyear Tire & Rubber Co. v. Ray-O-Vac Co., decided February 28, 1944, 64 S. Ct. 593 (60 USPQ 386), wherein it was said by Mr. Justice Roberts, with the concurrence of Messrs. Chief Justice Stone and Associate Justices Reed, Frankfurter and Rutledge, and the substantial concurrence of Mr. Justice Jackson, that—

"Viewed after the event, the means Anthony [Riemenschneider and Rastetter] adopted seem simple and such as should have been obvious to those who worked in the field, but this is not enough to negative invention. (p. 594)

"During a period of half a century, in which the use of flash light batteries [compression members] increased enormously, and the manufacture of flash light cells were conscious of the defects in them, no one devised a method of curing such defects.

"Once the method was discovered it commended itself to the public as evidenced by marked commercial success.

"These factors were entitled to weight in determining whether the improvement amounted to invention and should, in a close case, tip the scales in favor of patentability." (p. 595)

We do not believe the present situation is a "close case", but in view of the foregoing statement of the law, we believe the following facts should be brought to the attention of the Board of Appeals.

Facts of Record

It is shown by Applicants' Affidavit, and the Exhibits attached thereto, (Paper No. 5), that—

At the request of the American Bureau of Shipping, tests were made at Baltimore, Maryland, in 1941, of the Ship Booms then being used by the British Admiralty, the United States Maritime Commission and the United States Navy. Those Booms were made of straight tubes of different size, secured together by telescoping the ends, as shown in a general way in the Lingo patent No. 2,162,675, and were then known as the Standard Pipe Boom.

Comparative tests were also made of a Monotube Boom, embodying Applicants' compression member, as illustrated in the Test Sheet, Applicantss Exhibit B, which shows that although the Monotube Boom was Twenty (20) percent less in weight it has a strength of Forty-one (41) percent more than the Standard Pipe Boom.

As a result of those tests, the British Admiralty in early November 1941 and the United States Maritime Commission and the United States Navy early in 1942, began to use the Union Metal Cargo Boom with end fittings, as illustrated in Applicants' Exhibit C, which is an embodiment of the compression member defined by the pending claims.

Since the adoption and use of such Cargo Booms, up to October 1, 1943, the British Admiralty and the United States Maritime Commission and Navy, purchased from The Union Metal Manufacturing Company, applicants' assignee, altogether Twenty-four Thousand Seven Hundred and Nine (24,709) Cargo Booms embodying the structure defined in one or the other pending claims 1 and 2.

As a result of this extensive use, the manufacture of such Cargo Booms has substantially established a new industry of such a size that it has absorbed about Eight-five (85) percent of the capacity of The Union Metal Manufacturing Company, and has required it to increase the number
366 of its employees from about Three Hundred Fifty (350) to some Twelve Hundred (1200) in a period of about two years.

A 15 Ton Cargo Boom with Fittings, embodying Applicants' compression member, and other like Booms in the course of manufacture at the plant of The Union Metal Manufacturing Company, are illustrated in "the Boom Bay" photograph, Applicants' Exhibit D; and such a Boom under a 20 Ton Test is illustrated in Applicants' Exhibit E.

A 50 Ton Boom under a 55 Long Ton Test, is illustrated in Applicants' Exhibit F; and the last two Exhibits show Applicants' compression as actually installed in Liberty Ships whereon they are being load tested.

On July 16, 1943, The Union Metal Manufacturing Company was awarded the Maritime "M" for supplying Applicants' compression member to the United States Maritime Commission Liberty Ships and for the United States Navy war vessels. The Cargo Booms embodying Applicants' compression member, are One Hundred (100) percent compression members, and are not beams in any proper sense of the word.

When used in an antenna tower they are only incidentally subject to the lateral impact of the wind as a force tending to deflect them.

The Examiner's Arguments

In the face of the foregoing facts, which are not refuted in any manner by the Examiner, his effort to ignore, if not to belittle, the legal effect of the same in a purely speculative manner, is not very impressing or convincing.

If it be true, as suggested at the bottom of page 5 of his statement—

> 367 "... that the straight type boom is extremely simple to manufacture and may be so much cheaper to make that it is more economical than applicants' despite its lower theoretical efficiency."

that fact would make the world-wide use of Applicants' Cargo Boom even more effective as evidence of invention.

After showing the adoption and extensive use of Applicants' Cargo Booms in the distribution of munitions, machines and material throughout the world, it is not necessary to show that the erstwhile Standard Pipe Boom has been superseded, as suggested by the Examiner; for the same reason that the majority of the Supreme Court did not deem it necessary for the plaintiff to show that the extensive use was not due to other circumstances, as suggested by Mr. Justice Jackson in the Goodyear case, who otherwise did not disagree with the majority opinion that extensive use was effective evidence of invention.

The gratuitous and groundless suggestion that—

> "It may be that each type is being used and that most pole manufacturers are working to capacity to supply the sudden demand." (Id)

is not only wishful thinking, but it is not consistent with the fact that the British and American Governments adopted and used Applicants' Cargo Booms after tests had been made at the request of American Bureau of Shipping, which established the advantage of Twenty (20) percent less weight and Forty (40) percent more strength than the cheaper Standard Pipe Boom.

The saving of weight was compelling in view of the shortage of steel, and the increased strength was even more compelling for a Cargo Boom used on the seven seas throughout the world, where repair and replacement of the same would be difficult if not impossible.

It is a novel idea that Applicants' status as inventors should be defeated by the possession of other patents by their assignee, especially when the Government can use such patents willy-nilly; and especially when the assignee 368 has been awarded a Maritime "M" for supplying the Cargo Boom to the Government. The idea, however, is inconsistent with the suggestion that tapered poles of these dimensions can be made by other methods, as shown by Pfaff; which completely refutes the whole argument.

Summary on Extensive Use

This is not an ordinary case of quick recognition and extensive use or commercial success, because it involves an insistent demand for a lighter Boom with greater strength, to satisfy a pressing need for saving steel and handling heavier loads for embarking and disembarking such war machinery as tanks, airplanes and locomotives at ports distributed throughout the world.

Nor is it an ordinary case of the creation and expansion of a business which has resulted from sales promotion, but it is a development which has been compelled by the Maritime requirements of the greatest nations in the present war crisis.

This is evidenced by the compression member being obtained in the interior City of Canton, Ohio, and applied as a Ship Boom by the Admiralty and Navy of the two greatest maritime nations of the world, and by the awarding of the Maritime "M" for supplying such compression members, which is the highest honor which can be bestowed by the United States Government.

One is reminded of the saying, usually ascribed to Emerson, that—

> "If you build a better mouse trap than your neighbor, the world will make a beaten path to your door."

It is difficult to conceive a more impressive tribute to the importance and utility of the compression member per se which is the essential element of each one of the claims which have been allowed in the parent case and in the other application involved in Interference No. 80,509.

This situation leads to another rule of law which entitles Applicants to the allowance of the pending claims as

369 *Sub-Combinations of Allowed Claims*

In rejecting the pending claims, the Examiner has overlooked the rule of decision which has prevailed ever since Railroad Company v. Dubois was decided by the Supreme Court in 1870, 12 Wall 47 at page 60, where it was said by Mr. Justice Strong that—

> "Undoubtedly a patentee may claim and obtain a patent for an entire combination, or process, and also for such parts of the combination or process as are new and useful, or he may claim and obtain a patent for both.'"

The same thought is expressed even more pertinently by Mr. Justice Brown in Deering v. Winona Harvester Works (1894) 155 U. S. 286, at page 302, as follows:

> "The invention of a needle with the eye near the point is the basis of all the sewing machines used, but the methods of operating such a needle are many, and if Howe had been obliged to make his own method a part of every claim in which the needle was an element, his patent would have been practically worthless."

Likewise, in Roberts v. H. P. Nail Co., (1892) 53 Fed. 916, it was said by Circuit Judge [the late Chief Justice] Taft that—

> "In a combination patent it is permissible for the patentee, after claiming his whole machine, to claim also the combination of fewer parts than the whole, provided the combination of the parts is new, even if, taken alone, the combination will not result in any known useful product." (p. 920)
>
> "That patentees may properly protect what is really new in the combination, they must therefore be given the opportunity to select out a part or parts which are new, less than the whole working machine, and by their claims warn the public against the use of them in any other combination to accomplish the same general result as that for which they

were used by the patentee in his complete machine." (p. 921)

The same rule was followed in National Malleable Casting v. American Steel Foundries (1912) 182 Fed. 626, at page 639, where it was said by District Judge Rellstab that—

> "If any of the elements are new and useful, and show invention, these may be claimed and patented. This may be done in a separate patent or by separate and distinct claims in the patent covering the combination even though such parts are without utililty, save in combination with the other parts of the device."

370 And finally, the same principles have been more recently adopted and applied in Ex Parte John S. Parsons (1934) 21 USPQ 284, at page 285, where it was said by Examiner in Chief Thurber, that—

> "It is the established practice to allow subcombination claims which doe not cover all the details disclosed in an application, if the subcombination is useful and involves the exercise of invention.
>
> "We do not consider that an applicant should be estopped from claiming such a subcombination even if he did not particularly describe its utility in the application as originally filed."

These authorities go further than is necessary to establish the present Applicants' right to the claims under consideration, because it has been shown conclusively that the compression member not only has a great usefulness, outside of the particular combination in which it is disclosed; and it has also been shown that the sub-combination claims involve invention in themselves.

Present Application of the Rule

Pending claims 1 and 2 are obviously sub-combinations embodying the essential subject-matter of the slightly larger combination of the claims allowed in the parent case, as shown by claim 1 therein, which is Count 1 in said Interference No. 80,509, as follows:

"Count 1. An articulated radio antenna tower including a plurality of tubular compression members supported end to end upon one another, means providing flexible joints between said members, each of said members consisting of tubular sections joined together in end-to-end abutment and having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends, and guy wires attached under tension to the upper end of each said member."

The "flexible joints" and the "guy wires" are the only elements in the allowed combination, which are not present in the pending claims which have been rejected; and the remaining sub-combinations defined by pending claims 1 and 2 are not only new and useful over anything disclosed in prior patents, but have been shown to involve invention per se.

This situation is believed to fully justify an allowance of the pending claims, under the rule of the foregoing authorities.

371 *The References*

The situation here is substantially the same as in the case of Ex parte Wirth, 59 U.S.P.Q. 72, decided by this Honorable Board on March 8, 1943, in which it was said that—

"Applicant's claims all define this structure in varying expressions. No single reference shows the claimed structure, although the various elements are separately shown in the prior art...

"This is an art in which improvement is being made in the details, and a general resemblance to prior art does not necessarily defeat the claims if they recite an organization not found or suggested in the prior art...

"We regard the appealed claims as defining an invention over the prior art cited."

Pfaff No. 1,877,583 is relied upon by the Examiner to show a tapered pole of the dimensions of half a double tapered boom, and to show that such poles can be made by methods other than those shown by the Riemenschneider and Orr patents. Also, the Examiner holds the claims are squarely within the prior art as shown by Kraft in view of Pfaff.

Pfaff merely shows a tube tapered in one direction, and it is conceded that such a tube is old and well known, but it does not teach or make obvious the construction of the compression member, as defined in the claims on appeal, from two tapered tubes joined at their large ends. The best proof of this is that no one prior to applicants thought of making such a compression member even though the existence of a single taper pole was well known.

Wallace No. 2,173,525 shows a longitudinally curved side rail forming part of an automobile frame, and having a rectangular cross section. The side rail is primarily a beam and it is not intended to act as a compression member. It does not have equal strength in all lateral directions.

Nickles No. 1,941,952 shows a boom construction which according to the Examiner "in elevation has a double tapered shape, whereas in plan view, it has a single taper, wide at the base." Nickles' boom is made up of
372 longitudinal pipes 1 "rigidly connected by top, bottom and side lattice or lacing members 2." (Nickles patent, p. 1, lines 82-88).

Such a construction is clearly not pertinent to a compression member having equal strength in all lateral directions comprising two axially aligned, elongated frusto-conical tubes having their large ends joined in abutment.

Gates No. 535,537 shows a mast and boom construction for a derrick and having a double taper, but each is an open framework consisting of longitudinal T rails joined to end blocks and having segmental spacing blocks between the rails at longitudinal intervals.

There is no suggestion whatever of making a double-tapered compression member of two elongated frusto-conical tubes with their large ends joined in abutment.

Jenner No. 1,952,011 shows an insulator coupling which is very little longer than its largest diameter. His coupling comprises two frustums made of porcelain, ceramic or other suitable insulator material which is of fragile nature, so that the frustums are necessarily short and must be tied together under heavy clamping pressure.

The Jenner coupling is used in a tower at the joint between structural members comprising a lattice work of angles and the like, and the compression force is transmitted through either the upper or lower half only of the coupling, but not through both halves. Only a violent stretch of the imagination could produce an elongated compression member suitable as a mast or boom from Jenner's disclosure of a ceramic insulator coupling, particularly when his compression load is carried from the small end to the outer periphery of one frustum and not through the outer frustum of the coupling; whereas in Applicants' true compression member the compressive load is carried from one small end through the entire member to the other small end.

373 Kraft No. 1,691,818 shows a double tapered tubular strut or compression member for a keel column, but his strut is made up of four longitudinal segments with longitudinally extending radial flanges riveted together. There is no joint at the largest or mid section, and no suggestion of making a double tapered member of two frustoconical tubes.

Moreover, the strut of Kraft does not have equal strength in all lateral directions because of the flanges or ribs, and would offer greater wind resistance. It does not give maximum strength with minimum material.

Riemenschneider No. 1,921,850 and Orr No. 2,168,269 were cited merely to show that applicants' assignee is a manufacturer of single tapered poles and piles. The existence of such structures shows the presence rather than the absence of invention in conceiving and constructing the particular compression member defined in the claims on appeal.

DeVou No. 2,008,785 shows a tubular mast for a derrick, with the upper and lower ends oppositely tapered, but the central portion of the mast is broken away and the disclosure is lacking as to whether there is any joint between two tubes or whether one or two tubes are intended. Moreover, the heavy right hand shade lines on the mast indicate that the mast is rectangular in cross section.

The Examiner's Statement Regarding the References

In his statement (p. 3, para. 2) the Examiner says that the double tapered shape for a compression member is old and well known, and that Gates, Kraft and DeVou show practically the identical proportions of applicants' Figure 2 member.

Applicant is not claiming merely a compression member having a double tapered shape, but the claims are specifically limited to a member comprising two frusto-conical tubes joined in abutment at their large ends, in alignment
374 throughout their length, having equal strength in all lateral directions, and having means at each end for receiving and transmitting compression forces. The mere fact that several references show the general configuration without showing the structure is no anticipation of such claims.

In construing the claims on appeal, the Examiner has overlooked or failed to apply the general rule with respect to the construction of claims, as laid down by the Supreme Court in Carnegie v. Cambria, 185 U. S. 403, 432, that:

> "The claim of a patent must always be explained by and read in connection with the specification."

This requirement is only a restatement of the principle early recognized in Hogg v. Emerson, 11 How. 587, 606, that:

> "The court did right, too, in holding to the propriety of looking to the whole specification, and also to the drawings, for explanation of anything obscure."

The pending claims should be so construed.

It is true, as the Examiner states, that Nickles shows inserting or omitting a central section, but his central section is in a boom constructed of side rods or pipes rigidly connected with lattice, whereas the central section recited in applicants' claim 2 is "a central cylindrical tube."

The Examiner says (p. 3, para. 3) that Applicants' claims call for a member having equal strength in all lateral directions, and "theoretically would be limited to a smooth circular shape in cross-section," but that "it is believed that they should not be (and were not intended to be) construed in such a narrow way, but also cover flanged tubes as in Kraft, or tubes having some open work as in Gates."

Applicants' drawings clearly and unmistakably show a tube having a smooth circular shape in cross section, the specification describes the member as made up of two frusto-conical tubes which can only mean tubes of circular cross section, and the claims on appeal specify a member having equal strength in all lateral directions comprising two elongated frusto-conical tubes.

375 The dictionary definition of the word "tube" is "a hollow cylinder" and a frusto-conical tube can only mean part of a conical tube, which requires a circular cross section. Such language not only theoretically limits applicants' member to a circular cross section but requires it to be so. As to whether such cross section is limited to a "smooth" circular shape, common sense dictates that only slight deviations from a true circle would be included so long as the advantages of the structure claimed are attained.

Clearly, the flanged member of Kraft and the openwork member of Gates are not frusto-conical tubes having equal strength in all lateral directions as claimed, and it is absurd to say that the claims are intended to be construed to cover flanged or openwork structures shown in the prior art.

The Riemenschneider and Orr et al patents do not show "that a corrugated or flanged tube is alternative to a smooth tube." They do not show a flanged tube at all, and show merely that a pole or pile having a single taper may be smooth or fluted.

The Examiner says that "a smooth, continuous, walled, double tapered, circular cross-section compression member is most strongly suggested by DeVou, and definitely shown by Jenner." It is well settled that a mere suggestion in the drawing of a patent, without any decsription whatever showing a comprehension of the invention, is not a sufficient disclosure to anticipate the invention.

DeVou does not even show the central part of his mast in his drawing, and there is no actual showing or description of its cross sectional shape, although the drawing suggests a rectangular cross section, by means of shaded lines.

As to the definite showing of Jenner, he definitely shows a ceramic insulator consisting of two frusto-conical tubes clamped together, and transmitting compressive load 376 only through the upper frustum 24 A, in the form shown in Fig. 4, from the small end to the large end thereof, and not through the lower frustum 24 B but from the periphery of the large end of 24 A to the interconnecting housing 17. In Fig. 8 the compressive force is similarly transmitted through the lower frustum 24 A and not through 24 B, and in Fig. 9 through the lower frustum 39 B of the upper coupling member and the upper frustum 40 A of the lower coupling member without passing through the frustums 39 A and 40 B.

Jenner's insulator is short and stubby, and can not by any stretch of imagination be called elongated or cigar-shaped whether the term is construed as broad or narrow or relative or a "matter of choice with Jenner". Moreover, Jenner's member is first, last and always an insulator, and is not intended or adapted as an elongated true compression member for a radio tower and the like. It is used at the joint between two structural steel elongated true compression members.

The Examiner made a point of the fact that the splicing of structural members together and butt welding of short members to make longer members is notoriously old. It is quite obvious that Applicants are not claiming any kind of joint, but a particular structure in which the large ends of two elongated tubes are joined in abutment. Moreover, Applicants are not claiming the specific location of their joint per se, but only in combination with all the other elements recited in the claims.

Applicants have objected and still object strenuously to Wallace on the ground that he does not show a compression member. The Examiner's specious argument on page 4 seems to be that although Wallace's structural member is designed to withstand severe bending stresses (characteristic of a beam), those stresses cause tension and compression stresses in the material, and that therefore Wallace's member can be considered as a compression member. Such an argument proves just as conclusively that Wallace's member can be considered as a tension member.

377 The only logical and reasonable conclusion is that while Wallace's member may withstand some collateral tension and compression forces, it acts primarily as a beam, is designed as a beam, and should be considered as a beam. By the same token, while Applicants' member may withstand some collateral bending stresses, it acts primarily as a compression member, is designed as a compression member, and should be considered as a compression member.

Moreover, Wallace's member is rectangular in cross section and is longitudinally curved, whereas the claims on appeal call for frusto-conical tubes in substantially straight axial alignment. It does not require an engineer to see that the member of Wallace would not resist any substantial end compressive force, and would not have equal strength in all lateral directions.

Wallace is no more an anticipation of Applicants' claims on appeal than a sinuous wire of rectangular cross section is an anticipation of a straight wire of circular cross section.

With respect to Nickles, the Examiner's hypothesis, beginning in the last paragraph of page 4, as to how the shape of a compression member is determined by the consideration of bending moments is interesting but not at all pertinent. Granting for the sake of argument that his hypothesis is true, the fact still persists that Nickles shows a boom made up of longitudinal pipes rigidly connected by lattice members, and in the Examiner's own words "in elevation his boom has a double tapered shape, whereas in plan view it has a single taper, wide at the base."

The important issue in this case is, just what does Nickles show with respect to a compression member having equal strength in all lateral directions comprising two elongated frusto-conical tubes with their large ends joined in abutment?

378 *Jenner Does Not Meet Claim 1*

In spite of the fact that nine references are relied upon by the Examiner in his statement, the only reference which he relies upon per se as meeting the claims is Jenner. The Examiner says on page 5 that the only distinction Applicants have pointed out over this reference is the word "elongated", but that this term is broad and reads on any member having substantial length as compared to breadth. It is reiterated that the claims should be read in connection with the specification. Carnegie v. Cambria, supra.

Applicants' claims distinguish from Jenner in reciting a compression member, because Jenner's insulator is not a true compression member in the sense that it transmits a compressive force or load longitudinally through the entire member.

Moreover, it is not true that "it is wholly a matter of choice with Jenner how 'elongated' his members are." Jenner's insulator, in order to insulate, must be made of ceramic or insulator material which is relatively weak, so that Jenner specifies that the members 24 A and 24 B must be held together under a relatively heavy clamping pressure. Applicants are dealing with structural elements of metal because they require maximum compressive strength. (Specification p. 3, line 27 to p. 4, line 6).

Jenner and all of the other references cited fail to show or suggest Applicants' inventive concept of an elongated compression member having equal strength in all lateral directions and made up of two elongated frusto-conical tubes in substantially straight axial alignment with their large ends joined in abutment, and having means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

The only disclosure of such inventive concept is in Applicants' specification. The claims should be allowed under
authority of Ex parte Flynn and Ingersol, 59 U. S.
379 P. Q. 116, decided by this Honorable Board on August 2, 1943, as follows:

"It is possible as an academic matter to change one thing into another but from a legal viewpoint there must be somewhere in the record a suggestion of applicants' inventive concept and there is no such disclosure here except in applicants' specification. Obviously applicants' own disclosure in their specification cannot be used as prior art nor can the examiner rely on a holding of lack of invention when the structure has various advantages as described and which are not obvious."

This decision is a comprehensive statement and a concise application of the rule early set forth by the Supreme Court in Topliff v. Topliff, 145 U. S. 156, at page 161, as follows:

"It is not sufficient to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such functions."

It has been shown that Applicants' structure satisfied an existing need. The Examiner in holding Applicants' contribution to be without invention, acted contrary to the rule of the United States Supreme Court in Paramount v. American, 294 U. S. 464, 474, and of the Court of Appeals of the District of Columbia in Thornton v. Coe, 40 USPQ 85, 93, in both of which cases it is said:

"Where the method or device satisfies an old and recognized want, invention is to be inferred, rather than the exercise of mechanical skill."

In Conclusion

The record here shows that Riemenschneider and Rastetter's achievement is an invention under the recent rule of the Supreme Court in Cuno v. Automatic (1941), 314 U. S. 84, page 91, that—

"the new device, however useful it may be, must reveal the flash of creative genius, not merely the skill of the calling."

This statement is not a mere rhetorical flourish, and may be accepted as a terse definition of any new and useful invention, if full value is given to the meaning of "genius",
which has been well said to be an infinite capacity
380 for taking pains; of "creative", which involves the
production of something which has not existed before; and of "flash" which means to break suddenly into consciousness.

There is nothing new about the concise definition of invention used by Mr. Justice Douglas, because it is merely a condensed statement of views which were expressed more than fifty years ago in Robinson on Patents, as follows:

"§78. The mental faculties employed in the inventive act are the creative not the imitative faculties. An invention is the product of original thought. It involves the spontaneous conception of some idea not previously present to the mind of the inventor. . .

"§79. Moreover, no exercise of the creative faculties can form a part of the inventive act, unless the idea resulting from such exercise is fully apprehended by the mind of the inventor. To create by accident without a recognition of the fact or nature of his own creation, and consequently without the power to repeat the same creative act, is not invention. . .

"It is essential to the inventive act that the inventor should not only conceive, but should also perceive his original idea, and should do both so clearly as to make this idea an actual addition to his fund of knowledge, and to be able to communicate it to the public."

This discussion has particular pertinence to a proper understanding of what is meant in "invention", by emphasizing the fact there must be a "perception" of the utility of the idea as well as a mere "conception" of the same; and an early poet once expressed the same understanding, as follows:

> "The works of God are fair for naught
> Unless, our eyes in seeing,
> See hidden, in the thing, the thought
> That animates its being."

The same is true of the mundane works of man.

Riemenschneider and Rastetter not only conceived but they perceived a practical solution for the pressing problem, by means of a structure which had never existed before they developed it, by the exercise of an infinite capacity for taking pains, thus qualifying them as inventors, as defined by Mr. Justice Douglas in the recent pronouncement of the Supreme Court.

381 It is submitted on the above showing, authorities and arguments, that claims 1 and 2 define invention over anything shown in the references relied upon by the Examiner, that the decision of the Primary Examiner should be reversed, and that the claims on appeal should be allowed by this Honorable Board.

Very respectfully submitted at Washington, D. C., May 3, 1944.

FREASE & BISHOP,
By HARRY FREASE,
Attorneys for Applicants-Appellants.

E. R. HAMILTON,
Of Counsel.

382 **Proposed Generic Claim**

A longitudinal compression member having equal strength in all lateral directions consisting of elongated tubular sections joined together end-to-end in substantially straight axial alignment, having its greatest lateral dimension at its central portion and tapering gradually therefrom to its ends, and means at each end for receiving and transmitting compressive force longitudinally through said members.

This claim is developed directly from parent Claim 1 which is Count 1 in the Interference, without the "flexible joints" and "guy wires", and emphasizes the intimate relation between the allowed claims and the rejected claims. See page 10 supra.

Paper No. 10

383 Mailed May 20, 1944

U. S. Patent Office Board of Appeals

Appeal No. 1,002 MB

Hearing:
May 3, 1944

In the United States Patent Office

Before the Board of Appeals

Ex parte Edmund W. Riemenschneider
and Harry O. Rastetter

Application for patent filed December 10, 1943, Serial No. 513,730. Compression Member for Radio Antenna Tower and the Like.

Messrs. Frease & Bishop for appellants.

This is an appeal from the action of the examiner finally rejecting claims 1 and 2, all the claims in the case.

Claim 2 is representative and reads as follows:

2. A longitudinal compression member having equal strength in all lateral directions comprising a central cylindrical tube and two elongated frusto-conical tubes in substantially straight axial alignment throughout their length and having their large ends joined in abutment with the ends of said cylindrical tube, and means at each end of said member for receiving and transmitting compressive forces longitudinally through said member.

The references relied on are:

	Gates	535,537	Mar. 12, 1895
	Kraft	1,691,818	Nov. 13, 1928
384	Riemenschneider	1,821,850	Sept. 1, 1931
	Pfaff	1,877,583	Sept. 13, 1932
	Jenner	1,952,011	Mar. 20, 1934
	Nickles	1,941,952	Jan. 2, 1934
	De Vou	2,008,785	July 23, 1935
	Orr et al	2,168,269	Aug. 1, 1939
	Wallace	2,173,525	Sept. 19, 1939

We agree with the examiner that Gates and Kraft substantially show the invention stated in claim 1 even though there may be some doubt concerning De Vou. The equal strength of the member in lateral directions is said to be due to their circular cross section but Kraft indicates that his strut is of this cross section. See claim 7 of Kraft. In any event, the tube element of Kraft could be made according to Riemenschneider or Pfaff without invention.

The Jenner patent does not seem to be pertinent as to the elements 24-A and 24-B as only one of them is a compression member.

De Vou shows the hollow fabricated steel mast and plainly shows the mast as made of two frusto-conical tubes and they would necessarily be "joined in abutment". De Vou followed Riemenschneider and Pfaff in the art development and the De Vou patent would naturally be construed by skilled workers in view of the prior art. We are therefore of the opinion that De Vou anticipates claim 1 at least to the same extent as Kraft.

The joining of the sections is clearly indicated by Nickles (Figs. 2a and 4). Wallace also shows section joints, and both Wallace and Nickles show that non-tapered central section. We believe it would be only a matter of choice to make such central section in applicants' device or in Kraft, cylindrical.

385 No. 1,002

The affidavit referred to by the examiner shows commercial success of applicants' device but he is not satisfied that the success is due to the inventive or unobvious nature of the construction. We agree with the examiner that there is no doubt that the devices claimed are mere expedients when viewed in the light of the prior art.

Both applicants and the examiner refer to the pending interference but we do not see what bearing the interference has on the present appeal.

The decision of the examiner is affirmed.

E. T. MORGAN,
Examiner-in-Chief
C. H. SHAFFER,
Examiner-in-Chief
F. J. PORTER,
Examiner-in-Chief
Board of Appeals.

May 20, 1944

MESSRS. FREASE & BISHOP,
Harter Bank Bldg.,
Canton, Ohio.

Address Only
386 The Commissioner of Patents
Washington, D. C.

Department of Commerce
United States Patent Office
Washington

EDMUND W. RIEMENSCHNEIDER and
HARRY O. RASTETTER,
Serial No. 513,730,
Filed December 10, 1943,
Compression Member for Radio
Antenna Tower and the Like.

Notice of Civil Action Under Section 4915 R. S.

A civil action under Section 4915 R. S., entitled The Union Metal Manufacturing Company and Edmund W. Riemenschneider and Harry G. Rastetter v. Conway P. Coe, Commissioner of Patents, Civil Action No. 26,649, involving this application, was filed on November 8, 1944, in the District Court of the United States for the District of Columbia.

W. W. COCHRAN,
Solicitor.

November 8, 1944.

• • • • • • • • • •

485 Filed Sep 5, 1945

Plaintiffs' Exhibit No. 18.

Campbell Report of Baltimore Test.

Office:
43 South Gay St.
Plaza 1625

Home:
3600 Winterbourne Rd.
Forest 5137

David O. Campbell
(Master Mariner)
Marine Surveyor
Baltimore, Md.

May 27, 1942

Re: Union Metal Manufacturing Co.
Testing Boom—April 28, 1942

This is to certify that the undersigned surveyor did, at the request of the Union Metal Manufacturing Company, Canton, Ohio, attend the testing of Cargo Boom at the Maryland Dry Dock Company's Plant, Fairfield, Md., on April 28, 1942.

Report of test as under noted:

The steel booms with all appurtenances for the handling of cargo, etc. were installed on board of vessel afloat at the Maryland Yard.

One boom 55 ft. long x 3 Ga. (239) x 14-78 dia. at center x 8″ dia. at ends with 25 per cent taper per foot, tapering from center to ends.

One boom 47 ft. long x 3 Ga. (239) x 13-79 dia. at center x 8″ dia. at ends with 25 per cent taper per foot, tapering from center to ends.

Both booms to carry 5 long tons dead load.

The said 55-ft. 5-ton cargo boom was subjected to a proof load of 6¼ long tons, boom elevated to a 45 degree angle, load raised approx. 15 ft. above deck and allowed to drop about 4 ft. with sudden stop, and showed no signs of physical weakness. Said boom again lowered to a 25 degree angle and subjected to further test by raising load of 6¼ tons and showed no signs of physical weakness. So far as could be seen, said boom and all appurtenances are in excellent order and conditions.

CAPTAIN DAVID O. CAMPBELL,
Marine Surveyor.

DOC:S

486 United States Maritime Commisison
Production Division

Plaintiffs' Exhibit No. 19.

First Order for Cargo Booms

July 3, 1942

Union Metal Manufacturing Company
Canton, Ohio

Enter Purchase Order No. PD-MC43-4723 for 388 ships, 5 ton booms with fittings attached. 118 ships A-1-a priority covered by General Preference Order P7, Copy No. 100; 270 ships, A-1-b, P7, copy No. 105. Also Purchase Order No. PD-MC43-4752 for 979 ships each 15 and 50 ton booms with fittings attached. 535 ships, priority A-1-a, covered by General Preference Order P7, copy No. 100; 444 ships, P7, A-1-b, copy No. 105. Confirming.

C. E. WALSH, JR.,
U. S. Maritime Commission.

Confirmation
OEZacharias:jl
cc: Reading
General
Administrative

REPLY BRIEF FOR APPELLANTS.

United States Court of Appeals
For the District of Columbia

No. 9115

OCTOBER TERM, 1945.

UNION METAL MANUFACTURING COMPANY, Assignee,
and
EDMUND W. RIEMENSCHNEIDER, and
HARRY O. RASTETTER, Assignors,
Appellants,

vs.

CASPER W. OOMS,
As Commissioner of Patents,
Appellee.

United States Court of Appeals
for the District of Columbia
FILED JAN 8 1946
Joseph W. Stewart
CLERK

Appeal From the District Court of the United States
for the District of Columbia.

Harry Frease,
Harter Bank Building,
Canton 2, Ohio,

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Washington 4, D. C.,
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THE GATES LEGAL PUBLISHING CO., CLEVELAND, OHIO—MAIN 5647

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United States Court of Appeals
For the District of Columbia

No. 9115

OCTOBER TERM, 1945.

UNION METAL MANUFACTURING COMPANY, Assignee,
and
EDMUND W. RIEMENSCHNEIDER, and
HARRY O. RASTETTER, Assignors,
Appellants,
vs.
CASPER W. OOMS,
As Commissioner of Patents,
Appellee.

Appeal From the District Court of the United States for the District of Columbia.

REPLY BRIEF FOR APPELLANTS

The Brief for Appellee is not responsive to the Brief for Appellants. It does not refute any of the facts or refer to any of the authorities relied upon to sustain the several Points of Appeal.

POINT ONE OF APPEAL

Subcombinations are Patentable

In page 2 of the Brief for Appellee, it is expressly admitted that—

> "There is thus provided **as a subcombination** a compression member * * *"

Beyond this concession, the Brief for Appellee is absolutely **silent** on the subject, and is, in effect, a **confession without avoidance.**

The Brief is also silent on the Supreme Court decisions in *Railroad Company v. Dubois, Roberts v. H. P. Nail Co.,* and *Special Equipment Co. v. Coe,* referred to in pages 22 and 23 of Appellant's Brief, *q.v.*

In other words, the Brief, in effect, admits that the decision of the District Court is so clearly erroneous as to justify a reversal on Point One alone, upon the admitted **facts** and under the **authorities** submitted, which are not refuted in any manner by the Appellee.

Interference Decision

On December 10, 1945, the Board of Interference Examiners, by direction of the Commissioner of Patents under Section 4904 R. S., awarded priority of invention to Riemenschneider and Rastetter, in Interference No. 80,509 (56, 74)*, as follows:

> "Priority of invention of the subject matter in issue is hereby awarded to Edmund W. Riemenschneider and Harry O. Rastetter, junior parties."

This decision, which is not appealable in the Patent Office, see Section 4915 R. S., emphasizes the importance of the compression member claims (6, 7), without a patent for which the **value** of the antenna tower claims (56, 57 & 74, 75) which have been awarded to Riemenschneider and Rastetter, would be **greatly impaired**, according to the Supreme Court decisions cited in support of Point One of the Appeal.

However, the compression member claims stand on their own feet, and are independently patentable, as shown by the facts and authorities submitted in support of Points Two, Three and Six of the Appeal.

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* Refers to pages in the Joint Appendix.

POINT TWO OF APPEAL

Claims are Not Anticipated and Involve Invention

In pages 2, 3, and 4 of the Brief for Appellee, the limited disclosures of the Gates, Kraft, Riemenschneider, Pfaff, Nickles, DeVou and Wallace patents are fairly well described; without, however, referring in any manner to the **combination** of **all** the **elements** and the **structural features** set forth in the pending claims, or to the function of greater efficiency resulting therefrom, which are **not described** in any **one** or **all** of the prior patents.

Appellee's Brief, moreover, is **silent** on what is **not** described in the prior patents, which is pointed out in pages 29 to 35 of Appellant's Brief, *q.v.*

Appellee's Brief is also silent on the decisions of this Honorable Court in *Lucke v. Coe, Wach v. Coe, Hartford-Empire v. Coe,* and *Kelley v. Coe,* which condemn the **hindsight nunc pro tunc** method of taking **this** and **that** from the reference, and **putting them together** to deny patentability.

Thus Appellee's Brief shows in effect that the decision of the District Court is so clearly erroneous as to justify a reversal on Point Two alone, upon the admitted facts and under the authorities submitted, which are not refuted in any manner by the Appellee.

POINT THREE OF APPEAL

Evidence of Greater Efficiency and Extensive Use

It is difficult to understand why the Brief for Appellee, like the Decision of the District Court, is **absolutely silent** on the **Evidence of Invention** submitted by Affidavits in the Patent Office (67, 71, 115) and by Witnesses in the Court (24, 27, 31, 33, 37); and the only explanation is that the evidence is so impressive and conclusive that it cannot be answered except by mere **speculation, assumption** and **assertion.**

Likewise, the Brief for the Commissioner of Patents, and the Decision of the District Court, do not **distinguish** from, or even **mention**, the decision in *Isherwood v. Newport News, E. R. Wagner v. Porter Steel, Goodyear v. Ray-O-Vac,* and *Fletcher v. Peck,* presented in pages 37 to 39 of the Brief for Appellants, *q.v.*

These decisions establish the presence of invention in similar situations, and show that the District Court was clearly erroneous in its Findings, Conclusions, and Judgments, and justify a reversal on Point Three alone, upon the admitted Evidence and the Authorities; all of which were **ignored** by the District Court, and are not refuted in any manner by the Appellee.

The Testimony of the Witnesses in the Court proceedings was, in a large measure, persuasive Evidence of the presence of Invention in Applicant's Compression Member, and was directed to Commercial Success only in a collateral manner.

Appellee's Arguments and Authorities are Not Pertinent

The Argument on Point Three in pages 7 to 11 of the Brief for Appellee, refers only to the question of Commercial Success and Utility.

It is completely **silent** on the Evidence of Greater Efficiency, in the Affidavit of the Appellants, and in the testimony of widely experienced Witnesses, which is outlined in pages 16 and 17 of Appellants' Brief, *q.v.*

The few cases cited by the Appellee are concerned only with Commercial Success and Utility, and none of them have anything to do with the more important questions of Greater Efficiency which is present here.

In *Ternstedt v. Motor Products,* 119 F. 2d 834, the real reason for the decision was an extensive **previous public use** of the alleged advantages (pp. 836, 7) and a **defective description** in one of the patents (p. 835), which is not the situation here; and it is admitted therein that "**Each case must be decided on its peculiar facts.**" (p. 838)

In *Morrison Co. v. Coe,* 74 App. D. C., 122 F. 2d 793, the Commissioner and the Court found that Appellant's "**disclosure was anticipated,**" which is not the situation here.

In *Naamlooze Venootschafs v. Coe,* 78 App. D. C. 313; 132 F. 2d., 573, it was very properly held that—

> "In the field of chemistry, new and useful processes reached by experiment is not necessarily invention."

but that decision does not apply here, because the present improvement is not in the field of chemistry; and because the experiments relied upon were made **after** the present invention had been made, and were required to **obtain recognition** by the Maritime Commission, whose representatives were widely experienced, and by ship builders and designers and ship masters, to whom the improvement was **not obvious.**

These specially skilled men found the Monotube Ship Boom or Cargo Boom to be "**quite revolutionary** and **radically different** from those we had used in the past" (24-27), and that "this tapered type boom **was an innovation**" (38).

In *Minnesota Mining & Mfg. Co. v. Coe,* 69 App. D. C. 217, 99 F. 2d. 986, it was properly found that "commercial success did not of itself prove invention," because—

> "This result is one which has frequently followed the use of skill in manufacturing coupled with advertising and good salesmanship."

That is not the situation here, because skill in manufacturing, advertising, and good salesmanship, did not bring commercial success, and none was had until tests were made as required by the Maritime Commission.

It was only after these tests were made, more than a year after the Monotube Boom was submitted to Naval Architects and Ship Builders (22), that any sales were made to the Maritime Commission (35); which was followed by the extensive use of "**Approximately 75% of all ships built**" for the Maritime Commission (p. 30), and ever since, the Union Metal Monotube Booms have been used for torpedo net defense on **all American ships**, and on **British ships** built in this country (27).

These facts, which are not referred to in Appellee's Brief, refute its argument on Commercial Success and Utility.

POINTS FOUR AND FIVE OF APPEAL

No Opinion or Findings on the Affidavits and Evidence

The **substantive** errors established in Points One, Two, and Three, are supplemented by the **procedural** errors on Points Four and Five; with respect to which the Brief of Appellee does not explain the failure of the Court to express any Opinion or Findings of Fact on the Affidavits and the Evidence, as the basis of its Conclusions, which is expressly required by Rule 52 of Civil Procedure.

(4) Appellee's Brief, and also the District Court, are silent on the decisions in *Aetna Life v. Kepler* (1941), *Kuhn v. Princess Lida* (1941), and *Kelly v. Everglade* (1943), and ignore the rule of *Mayo v. Canning Co.* (1940) 309 U. S. 310, 316; all of which are particularly pertinent to the present situation, as pointed out in pages 39 to 41 of Appellants' Brief.

(5a) Likewise, Appellee's Brief, and also the District Court, are **silent** on the Decisions of the Courts in *Interstate Circuit v. United States* (1938), *American Steel & Wire v. Coe* (1939), and *Nichols v. Minnesota Mining* (1940), which are quoted in pages 42 and 43 of Appellants' Brief; and (b) in the *Sun Insurance v. Be-Mac* (1942), *Sbicca-Del Mac v. Milius* (1944) and *Stubbs v. Fulton* (1945) decisions, quoted in pages 44 and 45 of Appellants' Brief.

The Brief is also **silent** on the rule of *Mahn v. Harwood* that this Court "**is not bound by the Decision of the Commissioner,**" and on the recent statement of Circuit Judge

Martin that this Court should not, by compulsion, be the **rubber stamp** for the approval of the all-to-often **arbitrary action** of an administering agency, referred to in pages 41 and 42 of Appellants' Brief.

Evasive Arguments

The Brief for Appellee concludes that—

> "Of course, the Court below, as did the Patent Office, considered appellant's alleged utility and commercial success." (p. 12.)

but there is nothing in the Decision of the Court to indicate such a consideration, and much less, a consideration of the Evidence of Invention and Greater Efficiency.

The Brief also states that—

> "Just what finding Appellants deem is necessary is not clear from its Argument." (p. 11.)

In making this statement, the Appellee overlooks the requirements of Rule 52 of Civil Procedure, as interpreted in the foregoing decisions, and applied in the following additional cases.

Necessary Findings

In 1913 it was said by District Judge *Chatfield* in *General Electric v. Steinberger* (E. D. N. Y.) 208 Fed. 698, beginning at page 700, that—

> "In a proceeding under Section 4915, the testimony is taken *de novo*, and, * * * **and the court must make its own finding upon the testimony.**" *

In 1934, it was said by District Judge *Nields* in *American Tri-Ergon v. General Talking* (D. Del.) 8 F. Supp. 108, that—

> "This court is charged with the **duty** of **considering all the evidence** new and old and **deciding** the case as an original suit in equity."

---

* Emphasis supplied in quotations.

In 1941, it was said by District Judge *Caffey* in *United States v. Aluminum Co. of America* (D. C. D. N. Y.) 44 F. Supp. 97 at page 311 that—

> "**I feel it my duty to make meticulous findings** in the present case."

In 1942, District Judge *Letts* in the District Court for the District of Columbia, in *Minnesota Mining v. Coe,* 49 F. Supp. 706, applied what it believed to be the proper procedure, which is very pertinent to the present case, and entered the following:

> **"Findings of Fact**
>
> "13. The teachings set forth in the Brown and Clark applications and defined in the claim in issue **is novel over all the prior art of record.**
>
> "14. * * * **Is highly useful and has had intensive commercial success.**
>
> "15. * * * **Involves an important step found in the abrasive art and clearly involves invention.**
>
> "16. * * * **Is the result of a display of genius, far beyond that of the routineer skilled in the abrasive art.**" (Page 707.)
>
> **"Conclusion of Law**
>
> "1. An action against the Commissioner of Patents under Section 4915 R. S. * * * to authorize the issuance of a patent **is a suit de novo.** * * *
>
> "**Substantial new evidence** was presented **during the trial** of the present actions. * * *
>
> "2. **The commercial success** of the Brown and Clark invention taken **with the proof** of **novelty,** is **strong evidence** of **utility** and **patentability.** * * *
>
> "**Utility itself** is an **important ingredient** of **patentability.** * * *
>
> "3. The **degree** of **improvement** in **efficiency** in the abrasive art provided by the novel teachings of Brown and Clark **is strong evidence** of **patentability.**" (Page 708.)

In this manner Judge *Letts* not only applied the proper practice under Rule 52 of Civil Procedure, but also **recognized** the **responsibility** and **performed** the **duty** of a **court** of **equity.**

In 1944, it was said by Chief Justice **Groner** in *King v. Wall & Beaver,* 145 F. 2d. 377, that—

> "**The District Court** of the United States of the District of Columbia * * * has all the **jurisdiction** and **powers** of the United States District Court **elsewhere.**"

These cases are believed to fully enlighten the Appellee as to the Findings and Conclusions that Appellants deem to be necessary under Rule 52 of Federal Procedure.

Confirmed by this Court

The necessity of adequate Findings of Fact is confirmed by this Court in *Polaroid Corporation v. Markham* (1945) 67 U. S. P. Q. 1, cited in the Brief for Appellee, wherein it was said *Per Curiam,* at page 2, that—

> "We must set aside the judgment and remand the case for a **fuller compliance** with the requirement of F. R. C. P. Rule 52(a) that the court 'find the facts specially and state separately its conclusions of law thereon' * * *."

In so saying, this Court follows two Supreme Court decisions and also refers to *Saginaw Broadcasting Co. v. Federal Communications Commission,* 68 App. D. C. 282, 287; 96 F. 2d. 554, 559, where it was very pertinently said by Associate Justice *Stephens* that—

> "The requirement that courts, * * * shall make findings of fact, is a means provided by Congress for guaranteeing that cases shall be decided according to the **evidence** and the **law,** rather than **arbitrarily** or from **extralegal considerations.**"

That is exactly Appellants' position here.

The Appellants, however, are not asking that the present case be remanded to the District Court, for the reasons set forth in *United States v. Esnault-Pelterie,* 303 U. S. 26, wherein it is said *Per Curiam* that—

> "Where, **with all the evidence** before the court, it appears that **no substantial dispute of fact is presented,** * * * the questions of **invention** and infringement **may** be **determined** as **questions** of **law.**" (p. 30.)

POINT SIX OF APPEAL

Patentable Invention Here is a Question of Law

The Brief for Appellee is **silent** on this subject and does not refer to any of the six Supreme Court cases cited in support of this Point of Appeal in pages 45 to 47 of Appellants' Brief.

IN CONCLUSION

Under all the circumstances of this Appeal, it can only be concluded by referring the omissions in Appellee's Brief to the old adage that "**silence gives consent,**" and by asserting that the Appellants are entitled to a reversal by this Honorable Court of the Judgment of the District Court.

Very respectfully submitted,

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Harter Bank Bldg., Canton, Ohio,
Edward R. Walton, Jr.,
Munsey Bldg., Washington, D. C.,
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